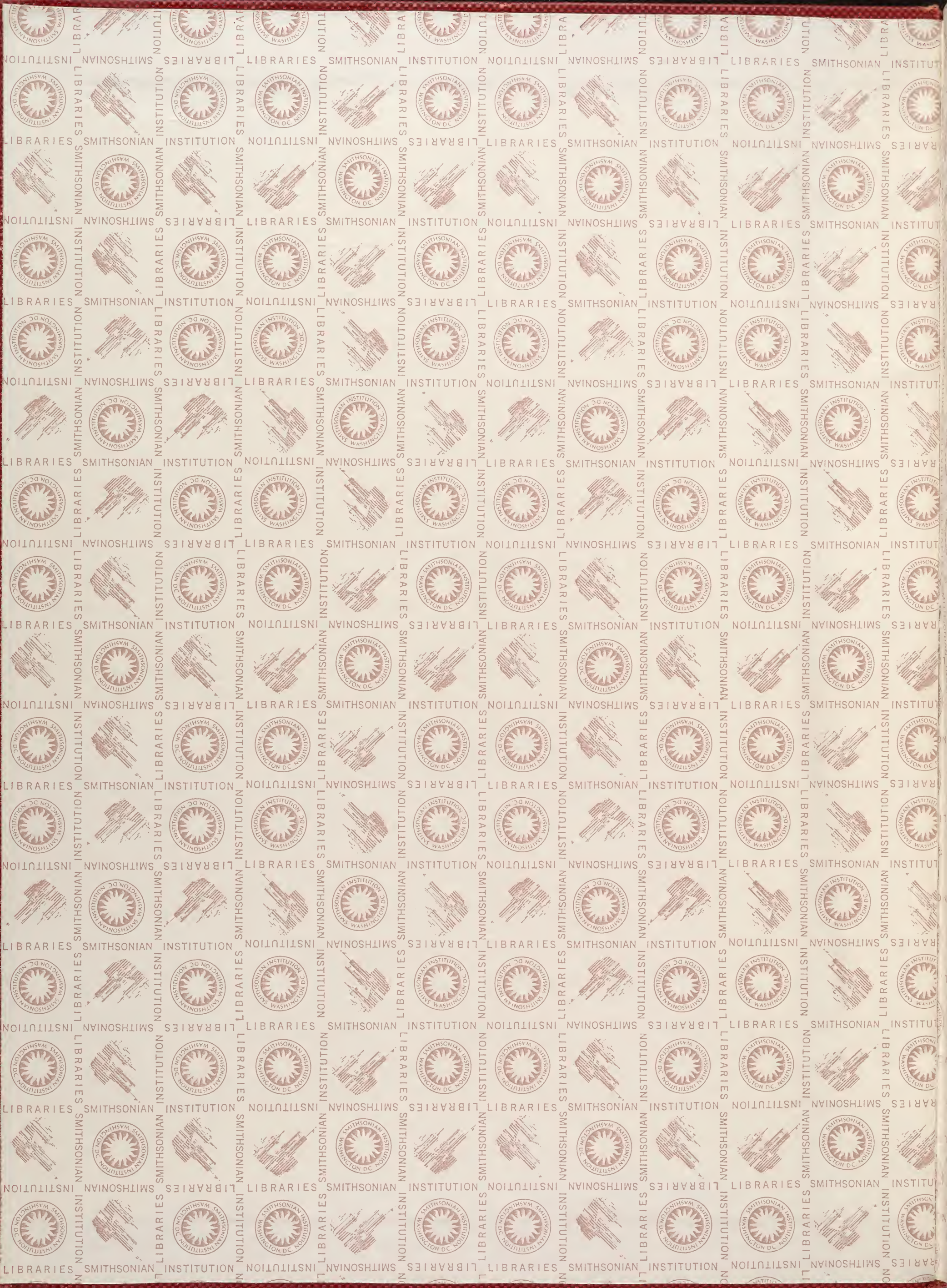
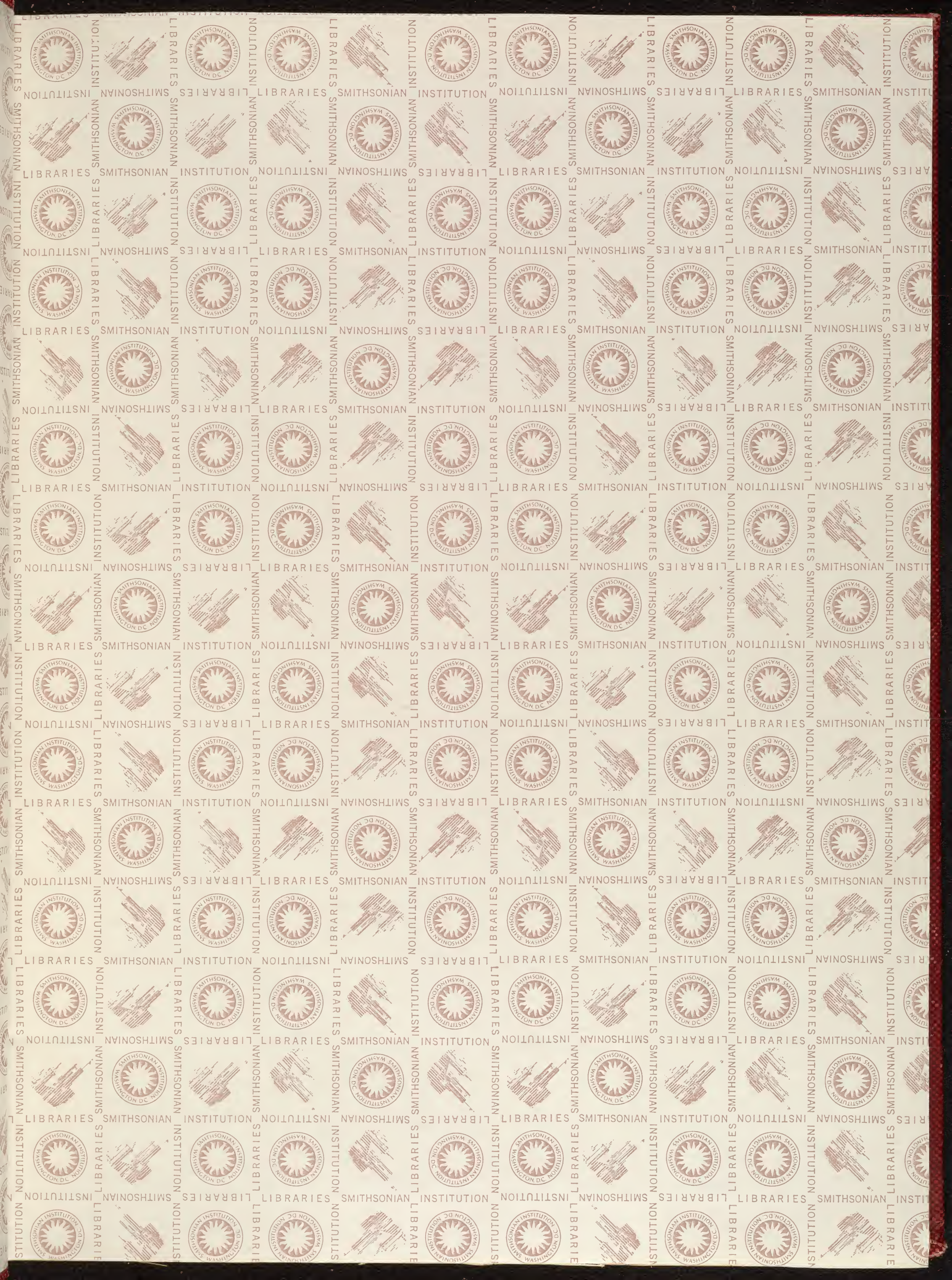








SUPPLEMENT

TO THE

‘BIRDS OF NEW ZEALAND.’

BY

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OFFICER OF THE LEGION OF HONOUR;
‘OFFICIER DE L’INSTRUCTION PUBLIQUE’ DE LA FRANCE;
KNIGHT (FIRST CLASS) OF THE ORDERS OF FRANCIS JOSEPH OF AUSTRIA, FREDERICK OF WURTEMBERG,
AND PHILIP THE MAGNANIMOUS OF HESSE-DARMSTADT;
GALILEIAN MEDALLIST OF THE FACULTY OF NATURAL SCIENCES, ROYAL UNIVERSITY, FLORENCE;
AND NEW-ZEALAND-EXHIBITION GOLD MEDALLIST FOR ‘LITERATURE AND SCIENCE,’
&c., &c., &c.

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LIST OF ILLUSTRATIONS.

VOL. II.

COLOURED PLATES.

- PLATE VI. Auckland Island Merganser (*Merganser australis*) and Chick.
„ VII. Rufous-faced Owl (*Sceloglaux rufifacies*).
„ VIII. Belted Kaka and Variety (*Nestor esslingi*).
„ IX. Antipodes-Island Parrakeet (*Cyanorhamphus unicolor*).
„ X. Island Wren (*Traversia insularis*), ♂ and ♀.
„ XI. North-Island Wren (*Xenicus stokesi*), ad. and juv.
„ XII. Chatham-Island Warbler (*Pseudogerygone albofrontata*); Chatham-Island Robin (*Miro traversi*).

The admirable manner in which all these plates have been hand-coloured, after the pattern drawn by Mr. Keulemans, by the Misses Dora Louise, Daisy Madeline, and Sylvia Rosamund Bowdler-Sharpe, and Mr. G. Edwards, has given me great satisfaction.

TEXT ILLUSTRATIONS.

- PAGE 3 Pair of Paradise Ducks.
„ 4 The Bowen Falls, Milford Sound, 540 feet high.
„ 8 Group of Hybrid Ducks.
„ 18 Home of the Mountain Duck.
„ 20 Head of Mountain Duck.
„ 45 Head of Phalacrocorax melanoleucus.
„ 48 Gannets on their Nesting-Ground.
„ 57 Head of Quail-Hawk.
„ 76 Keas in Camp.
„ 91 The Home of the Kakapo—Wet Jacket Arm.
„ 116 Bush View in the Buller Valley.
„ 122 The Last-known Resort of the North-Island Robin.
„ 126 Flycatchers on their Nest.
„ 160 Abnormal Growth of a Huia's Bill.

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DENDROCYGNA EYTONI.

(WHISTLING DUCK.)

Dendrocygna eytoni (Gould), **Buller, Birds of New Zealand, vol. ii., p. 268.**

THIS Duck is a very rare visitant to New Zealand, but several examples are recorded.* It is pretty well distributed throughout Australia, but sparingly in the southern portions of the continent. Mr. North writes †: "It is exclusively a fresh-water Duck, and is generally met with in the shallow water near the margins of swamps and rivers, except during the breeding season, when it resorts to well-grassed country some distance from water. . . . For an opportunity of examining and describing the eggs of Eyton's Tree Duck, I am indebted to an ardent sportsman and oologist, who found these birds breeding near that famous resort of wild fowl, the Macquarie Marshes. While shooting at Buckunguy on the 23rd September, 1893, in the long cane grass, about one-third of a mile from a small branch of the Macquarie River, he flushed one of these birds, which he quickly fired at, and it fell. As he moved forward to pick it up, he almost stepped on the nest, which was built at the side of a tussock of cane grass. It was a slight hollow in the soil, lined only with short pieces of cane grass, and contained nine fresh eggs. Evidently the Ducks had just begun to lay, for although twelve of them were obtained, only one more nest was found that day, which was similarly constructed and had two fresh eggs in it. Later on in the same locality another nest was found containing seven fresh eggs. From these nests the Ducks had made runs or tracks through the long grass to the water's edge. All of the eggs when found were immaculate, and entirely free from the usual feet marks of the female or stain of any kind. Two average eggs from the nest of nine are oval in form, tapering somewhat sharply towards the smaller end, and are comparatively small for the size of the bird. In colour they are milk-white (which readily distinguishes them from the eggs of any other member of the family inhabiting Australia) with an almost imperceptible tinge of cream; smooth in texture, and having a slight satiny lustre. The shell is thick and exceedingly hard, and the finder of the nests compared it to flint when he was engaged in drilling the eggs. Length, (a) 1.92 by 1.36 in.; (b), 1.88 by 1.36 in. When held in the hands and the shells are rubbed together, the sound produced is the same as if they were made of porcelain."

Mr. W. W. Smith writes ('Trans. N.Z. Inst.,' xxix., p. 255):—

Three individuals—two males and one female—of this rare and beautiful Duck have inhabited the lakes in the Ashburton Domain for three successive winters. During the earlier part of last winter [1895], before the lakes became frozen, they fed freely with the Grey and other Ducks on oats and wheat scattered along the water's edge. We fed the whole flock regularly every morning after daybreak, all coming freely to feed, after being hailed with a whistle. Owing to the mildness of the present winter, and the greater abundance of food obtainable everywhere, these birds are not so tame as they were last year. They are powerful flyers, while the peculiar shrill whistling sound they produce, when flying, distinguishes their flight from that of all other Ducks. These birds have hitherto left the Domain in August of each year, and returned the following April.

* See 'Birds of New Zealand,' vol. ii., p. 268.

† 'Proc. Linn. Soc., N.S.W.,' 1897, p. 60.

CASARCA VARIEGATA.

(PARADISE DUCK.)

Casarca variegata (Gmelin), **Buller, Birds of New Zealand, vol. ii., p. 264.**

THIS fine Duck, formerly so plentiful in the Marlborough District, is becoming scarce, large numbers perishing every season through taking the poisoned grain laid for rabbits. Mr. McDonald, of Blenheim, informs me that years ago he was a constant attendant when the Maoris hunted the "flappers," or moulting birds, when incapable of flight, and that he has known upwards of five thousand to be taken in this manner during a single season. They are now counted only by tens and twenties.

A tame Paradise Duck was an inhabitant of the Masterton fish-ponds for several years. I was assured by the curator at the time that this bird was as useful as any watch-dog could be, for it would set up an unceasing clamour on the appearance of a stranger. Its affection for the keeper was most remarkable, for it would follow him everywhere and nestle about his feet in the most demonstrative manner, squatting on the ground with its neck outstretched and uttering all the time a sort of purring note of satisfaction. It finally had a mate, and they bred and brought up a large brood of young; but previously to this it every season laid a number of unfertilised eggs, and then took to hatching-out a nest of domestic Duck's eggs.

A tame Duck of this species which I had at the Papaitonga Lake attached itself in the same marked way to one of the domestics, but was shy and distant with everyone else. A pinioned male bird which I afterwards placed on the lake wandered off to the sea, a distance of several miles, and did not return.

The handsomely-striking plumage of this bird, coupled with its docility and readiness to breed in confinement, mark it out as being specially suitable for private ponds and ornamental waters.

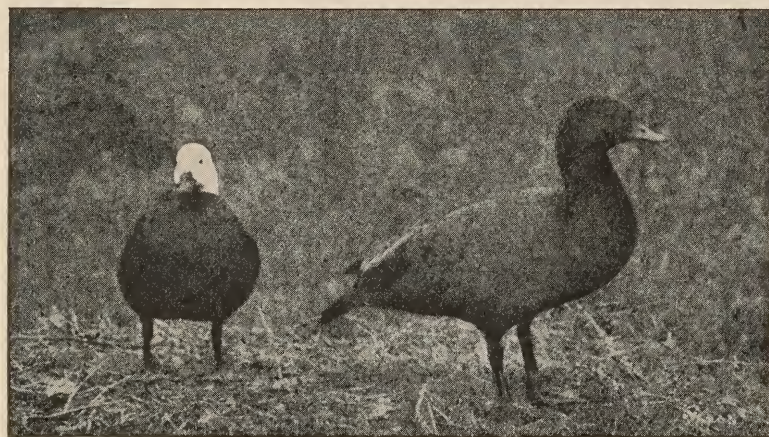
I have remarked (vol. ii., p. 267) on the devotion of this species to its young, and the devices to which it resorts to draw intruders away from the vicinity of its nest. I have met with the following in the columns of a newspaper, and the record is worth preserving:—

"The following is a touching instance of the affection of birds for their young: Mr. Shalders informs the *North Otago Times* that, having been requested to obtain some young Paradise Ducks for the purpose of exchanging with the Acclimatisation Society of Victoria, he, while travelling with another man up-country, with a waggon and team, saw on a stream two parent birds and eight or nine young ones. On his essaying to capture some of these, the parent birds, like the home Lapwings, endeavoured, by feigning lameness, to decoy him from their young; but he captured three of them, and placed them in a small box on the waggon. They proceeded a distance of six miles and camped for the night, and on rising early in the morning Mr. Shalders' first care was to look after the young birds. On leaving the tent, however, he saw not far from the waggon a Paradise Duck and Drake, and remarked to his mate that he believed that the birds had followed them. To ascertain if this were so, he took the little ducklings out and placed them on the ground some short distance from the waggon, and watched. They were almost immediately taken charge of by the Drake, who made off with them through the mate-kauri in the direction

of the river, rising every few yards in order, apparently, to let his companion see the course he was taking. The informant says he had not the heart to endeavour to recapture his prize, and he let them go as a tribute to the faithful care of the parent birds."

Professor MacGillivray said that *Casarca rutila* might be termed with equal propriety a Duck or a Goose, and he demonstrated this by the anatomy of the bird. I may mention another point of similarity: the male of the Paradise Duck hisses, when provoked, after the manner of the domestic Gander.

A snapshot, showing a pair of these birds, in very characteristic positions, appeared in the *New Zealand Graphic* and, by permission, I have much pleasure in reproducing it here.



PAIR OF PARADISE DUCKS.

Mr. Morgan Carkeek, who sent me some fine young Paradise Ducks from the Marlborough District in January, states that, in his opinion, this species breeds twice in the year. He found it quite numerous in the mountain streams or river-beds, and met with many broods of young ones. He counted generally seven or eight, and on one occasion thirteen, in a brood.

Mr. Henry, the caretaker of Resolution Island, says of the Paradise Duck: "I take them to be very local, for I have known a pair to remain in a little bay in the Te Anau Lake for a whole year and probably two years. The ablest Drake, with his mate, takes possession of the best feeding-ground, marks out the boundary of his domain, and protects it against all comers. He keeps a sharp look-out for intruders, and if they alight on his side of the point he comes along, followed by his mate, and drives them off, or has a fight The Ducks only scream and scold, but the drakes collar each other and beat away with their wings until they are so exhausted that they are unable to fly for some time afterwards."

A remarkable instance of the "homing" instinct, or sense of direction, on the part of this Duck is given by Mr. J. M. Ritchie, of Boloraid, Dunedin, in the following words: "This bird had become domesticated, and lived at a sheep station twenty-one miles from Timaru. It belonged to the house-keeper, who had clipped its wings, and it spent its life between the homestead and a pond close by. In the course of time its mistress left for the neighbourhood of Christchurch, and she carried the Duck with her in a basket. Her journey was by train, twenty-one miles to Timaru, then there was a change into another train and a journey of ninety-five miles; finally came a coach drive of about ten miles. By-and-bye the Duck disappeared from its new home, and was looked upon as lost. Then its mistress returned to her previous domicile some time after, and to her intense surprise found that the Duck had revisited its old haunts, and was settled on the pond as before. It could not fly, and no one was known to have carried it, so that the only remaining hypothesis was that it had walked over 120 miles, threading its way by many cross roads, over bridges and across streams, through country which presents great variety of contour in hill, valley, and river. A Duck that could do that could do anything!"

Many years ago, when stationed (as R.M.) at Wanganui, I received, through the good offices of Hoani Meihana Te Rangiotu, the chief man of the Rangitane tribe, two living pairs of the Paradise Duck from the Upper Manawatu. They were then in the young plumage of the first year; but in due time they assumed the full livery, and for a considerable period they were inhabitants of my garden in Victoria Avenue. In 1865 Sir George Grey, the then Governor, came up to the district to lead the Colonial forces against the famous Weraroa Pa, during which operations I had the privilege of serving as a volunteer on His Excellency's staff. When Sir George Grey was leaving, seeing how much he admired the birds, I begged his acceptance of them. They were immediately sent north to the Island of Kawau, where they bred freely, becoming in the end quite an attractive feature in this subsequent home of the "Great Proconsul."

In the British Museum there is a specimen of this Paradise Duck, which is said to have been obtained at Brisbane in July by Messrs. Cockrell & Thorpe. If authentic, this was no doubt a straggler from New Zealand.



THE BOWEN FALLS, MILFORD SOUND 540 FEET HIGH.

The disappearance of the Paradise Duck from the Nelson district, where it was formerly so abundant, is generally attributed to the laying of poisoned wheat for wild rabbits; but I am more inclined to ascribe it to the ravages of stoats and weasels.

Of this handsome Duck, Mr. Seddon, the Prime Minister of New Zealand, sent me, in 1903, two living pairs, which I deposited for a time in the Zoological Society's Gardens at Regent's Park, ultimately presenting a pair to my friend, Sir Robert Herbert, to be placed on his ornamental waters at Ickleton.

On the West Coast, in the early part of January, I shot a young Paradise Duck, fully fledged, but unable to fly. I observed that it swam very low, only the head and neck appearing above the surface. This was in Milford Sound, not far from the beautiful waterfall which perpetuates the name of one of our most popular Governors, and is represented in the foregoing photograph taken by my daughter.

ORDER ANSERIFORMES.]

[FAMILY ANATIDÆ.

ANAS SUPERCILIOSA.

(GREY DUCK.)

Anas superciliosa, Gmelin; Buller, *Birds of New Zealand*, vol. ii., p. 251.

PROBABLY no bird is better known and appreciated in New Zealand than the Grey Duck. Affording excellent game for sportsmen and forming a valuable addition to the table, it will always claim special attention. But it is being gradually supplanted by a superior bird in every way, that is to say, a cross between this native Duck and the introduced Mallard. A few years will probably suffice to establish the cross-breed everywhere, because the conditions of life are very favourable to birds of this class. When one reflects that about thirty years ago there were no Black Swans in New Zealand, and that now thousands are to be met with in both islands, all being the progeny of two or three pairs turned loose by the late Captain W. T. Owen and myself on the Ruatangata Lake, in the North Island, in 1865, and about a similar number liberated by Sir Cracroft Wilson and the Acclimatisation Society in the South Island, a year or two earlier,* it is pretty safe to hazard a conjecture that in, say, ten years' time, the cross-breeds

* Being anxious to get confirmation of this fact, as against the theory of voluntary immigration from Australia, I wrote to several gentlemen in the South Island, capable of forming a sound opinion, and was favoured with the following replies:—

Captain Hutton writes (6th July, 1903): "The Black Swan is abundant on all the lakes in Canterbury and Otago. It is commonly seen hanging up in the poulterers' shops. I saw one at the Auckland Islands in 1901. I have no doubt but that these are all the produce of those turned out by yourself and the Acclimatisation Society, for the time of spreading agrees well. I saw plenty on Lake Grassmere (Marlborough) in 1872, but at that time there were none on Lake Ellesmere, which is good evidence that they came to us from the north."

Mr. W. W. Smith writes (August 15th, 1903): "The vast multitudes of these birds now inhabiting the inland Otago lakes, Lake Ellesmere (Waihora) in Canterbury, Lake Brunner and other remote lakes, are unquestionably the descendants of the few pairs liberated by you in the north in 1865, and of other pairs liberated by several

will afford good shooting all over the country. Fourteen years ago I brought from England and turned out on the Papaitonga Lake a number of Mallards, which bred freely and spread in the first season to the Horowhenua Lake and the adjacent lagoons. The various Acclimatisation Societies have been doing the same; and now the Seddon Government, much to their credit, have introduced a larger contingent, a fair share going to Papaitonga because of its close protection.

An exceptionally large male specimen shot by my son Walter on Lake Papaitonga, and now in my collection, gave the following measurements: Extent of wings, 32 inches; length, 24 inches. Feet dull gamboge-yellow.

Mr. W. W. Smith has made some additions to the abnormal varieties mentioned by me. He writes ('Trans. N. Z. S.,' xxix., p. 253):—

I have now to record several more varied forms which have for several years frequented the lakes in the public domains at Ashburton [under Mr. Smith's care as custodian]. When the shooting-season opens in April, large flocks of Grey Ducks and other native species assemble on the lakes in the Domain and remain during the winter. As there is not sufficient food for them in the Domain, they repair in the evening to the river-bed and adjacent swamps, to feed during the night, and return in the early morning to spend the day unmolested under the willow-trees growing on the islands in the lakes. For several years I have observed their arrival in April, and have noticed the occurrence of any individuals exhibiting colours diverging from the normal type. In July, 1892, a fine individual inhabited the lower lake, having its head, throat, and breast pale buff. The scapulars were beautifully mottled with white feathers, which made the bird conspicuous among the large flock of Ducks resting on the lake. During the winter of 1894, a partial albino inhabited the Domain waters. The back, breast, and scapular region were of a faded white, while portions of the neck were lightly studded with white feathers. The bird remained very timid throughout the winter, and never came to the banks of the lake with the others to feed on the oats or wheat we scattered there for them every morning. In the same year we observed a bird with the whole plumage tending to melanism. When swimming leisurely about the lake, or when resting on the bank in the sunshine, the plumage appeared to be of a lustrous black. I have frequently watched the bird preening its feathers, and while thus engaged the under-parts appeared to be much paler than in normally coloured birds. Last winter a fine individual with the primary wing-feathers pure white remained on the lakes from April until the 8th June. When they became frozen over

gentlemen (Sir Cracroft Wilson being one of them) in this Island in 1867. The Black Swan is prodigiously productive in the remote isolated lake-districts. Two years ago I removed three sittings of eggs—two of six and one of four—from a single pair of Black Swans, in four months. They commence to hatch their young in July and they generally rear two and three broods of from four to six in each year. Seeing that the Black Swan is so extremely and so unfailingly reproductive, there is no question in my mind that the large flocks of these birds now existing on the larger lakes in New Zealand are due to this cause and not to migration from Australia. Previous to their introduction by you and the Acclimatisation Society in 1863-65-67, Black Swans were unknown in New Zealand. Notwithstanding their power of making long-sustained flights and the strong westerly winds frequently blowing across the Tasman Sea, I do not believe that any of these birds have ever crossed the thousand or eleven hundred miles of intervening ocean. In periods of protracted drought in their native home, they would be compelled to migrate long distances in search of sustenance, which they could do in stages on the great Australian continent, but never, I feel convinced, to the extent of crossing the sea to New Zealand."

Mr. A. Hamilton writes (June 29th, 1903): "Jennings left this morning by the 'Hinemoa,' for the Southern Islands, and he has asked me to reply to you for him in the matter of the Black Swan. He is of opinion that the birds now so plentiful on all our sheets of water are descendants of the introduced birds. The number of nests that can be found around the Kaitangata lagoon at the proper season is very great, and would in a few years mean thousands of birds. He thinks 300 or 400 nests a season quite within the mark in this place alone! I know that more than twenty years ago hundreds of Black Swans might be seen on the Napier Swamp at certain seasons, although I do not think many bred there, as I never saw many cygnets."

I may mention that on my last visit to the west coast sounds, in 1895, I found the Black Swan fairly established there. I paid a visit, with Lord Ranfurly, to Lake Ada, in Milford Sound, and several times saw a flock of them on the wing. Captain Fairchild informed us that they had been there several years.

many of the birds were compelled to seek food and shelter elsewhere. At the present time [1896] a remarkably-coloured form inhabits the lower lake; the head, breast, back, and tail pale white, other parts normally coloured. The bird is extremely timid and watchful, and readily takes wing at the slightest disturbance. It is well known to ornithologists that albinos and white varieties, and other conspicuously-aberrant forms, are more wary than typically-coloured birds. They appear instinctively to know that their peculiar and striking colours render them more conspicuous to their enemies. Albinism unquestionably causes greater timidity and watchfulness in many species of birds so affected. . . . We have three dozen Grey Ducks pinioned that were reared in the Domain during the last three seasons, which are perfectly tame. They follow visitors along the walks for food, and while being fed, several will lie on the walks and permit themselves to be stroked with the hand on the back. Like the Paradise Duck, they are undoubtedly easily tameable. . . . In July the wild flock becomes more restless and spends more time on the water. The males chase each other and fight and dive vigorously. By the middle of August they have generally all paired and disappeared to the swamps and river-banks of the plains, to nest for the season. In the nesting season of 1894-95 the pinioned Grey Ducks in the Domain reared fourteen broods, averaging six in a brood. The young are timid and wary for some time, but soon become quiet, and come skipping rapidly over the water when called to be fed.

Mr. William Marriner informs me that on the Wairoa River, at the commencement of the shooting season, the Grey Duck is very fat and of excellent flavour, from feeding on the spawn of eels—tiny little crawling things that infest the mud-banks of the river in countless millions. On opening the birds at this season he has found their crops distended with this food alone, and there is every evidence that it is very nutritious.

The Grey Duck commences breeding on the Papaitonga Lake about the end of September, and the breeding season lasts till after Christmas. My son believes that this species brings out two broods in the season: he counted one brood of eleven young ones.

I have already recorded some remarkable eccentricities in the breeding of this species; and I find the following in one of my note-books: At one end of the little island of Motutaiko, in Taupo Lake, on a pohutukawa tree overhanging the water, and at an elevation of twelve feet from the surface, a pair of these Ducks have for several successive seasons re-formed their rude nest and brought forth their young.

Captain Mair writes to me, that in September, 1895, he visited Cook's Rock (Te Pataopare-tawhinu) in Mercury Bay. He found it difficult to land owing to the tremendous surge that was dashing against it at every point. At length, making a spring from the bow of the whale-boat, he landed on his hands and knees on the sharp, jagged rocks, and climbed up the rock which stands up some thirty-six to forty feet out of the sea, with a few stunted pohutukawa trees growing here and there. It has diminished considerably in size since Cook's time, and this remnant cannot long resist the erosion of wave and weather. He continues: "Near the top of the rock, on the seaward side, is a sort of hollow, evidently artificial. Judge of my surprise at finding a common Grey Duck nesting there, with seventeen eggs. I almost put my hand on her before she took wing, making for a small lagoon near Mahunganui Point on the mainland, about a quarter of a mile off, on the north-west side of Mercury Bay harbour. Barring Hawks and predatory sea-birds, the wily Duck must have felt as safe there as did the astute warrior of old who defied Cook from the top of his secure retreat."

Mr. Taylor White, of Wimbledon, Hawke's Bay, who has taken much active interest in the subject and conducted experiments for twenty years, writes me that he has a number of "fertile hybrid Ducks," the result of crossing *Anas superciliosa* with the common *Anas boschas* of Europe. His remarks upon them are interesting: "They follow two shades of colour, a dark and a lighter shade, each of which has its own peculiar markings. I have not succeeded in establishing the shining-green wing-bar of *Anas superciliosa*, but in the struggle between the blue and green, these colours have become grey or have almost disappeared, leaving the upper coverts

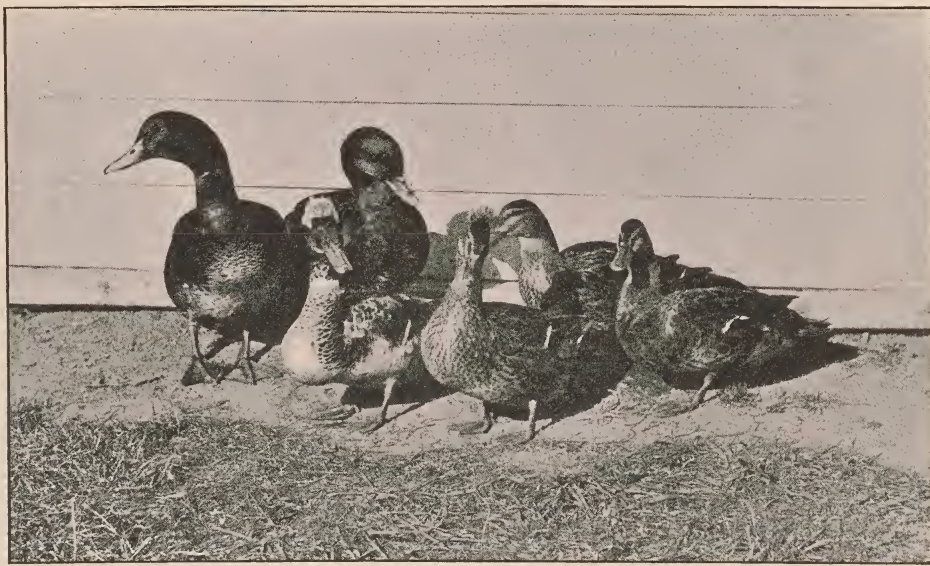
white: possibly a white bar might ultimately result. The light-coloured Drakes have a green head and neck and small white ring; chestnut breast, with this colour extended slightly over the back and wings, and underneath the latter; the back minutely marked with slate-coloured speckles; rump and tail-coverts velvet black; beak green; legs orange. The dark-coloured Drakes have a green head and neck, but no white ring; breast and back speckled with slate-colour on a white ground; under tail-coverts and vent whitish. The Ducks, and especially those of the light shade, are beautifully spotted and marked when observed closely."

Mr. W. W. Smith, of Ashburton, who has likewise devoted himself to experiments of a similar kind, has sent me the following interesting notes:—

The progeny of hybrid Rouen and Grey Duck are quite fertile, and rear two and three broods a year. The Drakes are of two forms—the richly crested and plain-headed—while they differ also very much in the typical or general coloration of the plumage. The crested forms invariably have the pectus of various rich shades of cinnamon, red, and deep brown. Some of the plain-headed forms likewise have the pectus of these colours, while others are of a uniform pale blue with delicately mottled markings of a bluish-black shade; the latter forms are invariably without the narrow white neck-ring which is present in the crested forms. The parents of these birds were hybrids as stated, but they exhibited no sign of a crest or of the remarkable range of variability shown by their progeny. You are aware that hybrids of the first cross differ much between the Rouen and native Grey Duck. This is due chiefly to the class of Rouen Drake, which, under domestication, is extremely variable, unless bred under careful artificial selection. The chief object in view when undertaking these experiments was to test the fertility of hybrids in New Zealand.

December 19th, 1903.—Since writing the foregoing notes I have secured thirty-one young birds from birds of the second generation of hybrids, that is to say, from the progeny of the first cross between the Rouen and the native Grey Duck. The three Ducks rearing these broods have bred with the Drake having the same lineage as themselves, for six years, and up to this season have produced birds as described in my former notes. In one of these broods, however, four of them are white, and in another brood there is one white one. They are the same neat little birds as are the grey forms of the broods. All these birds have bred on a small pond, enclosed with wire netting, and no other Drakes were near. I think it is of great interest to record these white birds occurring in the broods. With their neat little forms they bid fair to make an interesting addition to our ornamental water-fowl.

The birds shown in the accompanying photograph exhibit three forms of hybrid Ducks. The larger pair on the left are Muscovy-Rouen, and are of a fine rich cinnamon-brown colour, with richly iridescent plumage. These birds are very beautiful and conspicuous on ornamental waters, while they are valuable table birds, weighing from 7 lbs. to 8½ lbs., and are very hardy and easily reared. Our Muscovy-Aylesbury hybrids are blue-black and white, and are also magnificent birds for the purposes already noted.



GROUP OF HYBRID DUCKS.

The plain-headed pair on the right at the back of the picture are birds of the first cross between the Rouen and native wild Grey Duck. An unmistakable feature of these interesting birds is the dark greenish bill inherited from their wild parents. Both as an ornamental and table bird this hybrid is invaluable.

The crested pair in the front of the group are the progeny of the last-mentioned hybrids, and represent the third and subsequent generations. Of fourteen second-generation broods we have reared during the last six years, no sign of a crest appeared in either sex. In the third generation, according to our experience, the crest first appears. Apart from the interesting fact that birds of the first generation of these hybrids are fertile, the crest is remarkable in illustrating a form of ancient 'head gear' or ornamentation inherited from some remote ancestor. Anyone who knows anything of the hybridisation of these birds also knows that they are degenerate forms in which certain phases of ornamentation first appear. The ducks are small neat forms, with finely mottled heads and necks. In some specimens the speculum of the wing is much degenerated, being almost obsolete. . . . I should state that Mr. Taylor White, of Wimbledon, Hawke's Bay, has been experimenting on similar lines as I am doing, and with similar results.

On the Maori mode of trapping this Duck, Mr. Elsdon Best has published the following :—

Ducks were snared in the following manner :—A cord was stretched across a river, stream, or lake arm, so as to be a little above the surface of the water, and to this cord were attached a great number of snares, the loops of which hung just above the water, so that the Ducks when swimming under the line (kaha) might thrust their heads through the loops and thus be caught. During the moulting season, ducks were unable to fly and were hunted with dogs, and even caught by hand.

In 1892, Mr. R. J. Kingsley, of Nelson, sent me for examination what was to all appearance a hybrid, either between the Grey Duck (*Anas superciliosa*) and the Mountain Duck (*Hymenolæmus malacorhynchus*) or between our domestic Duck and the former. I made the following notes :—

The head is that of the Grey Duck, although the markings are somewhat indeterminate. The general plumage of the body is a pale slaty-grey, the feathers of the upper parts, however, having pale brown margins. The wing-feathers and scapulars are of lighter colour, being of a uniform French-grey with dark shaft-lines, but without the dark margins. The median wing-coverts are dull velvety-black, changing to grey and broadly tipped with white. There is a narrow speculum down the centre, one of the coverts having an exterior border of metallic-green. The smaller wing-coverts display a conspicuous band of white, forming an upper alar bar. The upper tail-coverts are margined with dusky-brown, and the tail-feathers—but very narrowly—with a clearer brown. The whole of the lower fore-neck and the crop have a chestnut-brown line, each feather, however, being narrowly edged with light-grey, which character is more pronounced on the sides of the body and flanks, where the feathers have their webs freckled and vermiculated with grey. The under tail-coverts are darker, and have dull chestnut-brown margins. The bill is blackish-brown, the upper mandible with a black nail, and the lower largely marked on its central portion with yellow.

The slaty ground-colour and the reddish tinge on the breast and under tail-coverts naturally suggest a partial Mountain-Duck parentage; but the large size of the bird and the character of the bill and legs go to support the other supposition, which is probably the correct one. I am more inclined to this view after reading the description of hybrids furnished by Mr. Taylor White and Mr. W. W. Smith.

Colonel Cradock (in his book cited on page 65) says :

No one, I think, can truthfully state that in any country in the world has he met with wild Ducks that did not fear man, or, at all events, did not absolutely dread him after a few of their comrades had been under fire; and New Zealand, though peculiar in the extraordinary fearlessness of most of its indigenous birds, is no exception when wild Ducks are brought on to the *tapis*. . . . The commonest Duck in the Colony is the Grey Duck, ordinarily abbreviated into the one word 'Greys.' The Grey Duck answers to the Mallard of Europe, and is the *wild duck* of New Zealand, and there are certainly 80 per cent. of 'Greys' amongst the whole of the Duck tribe. He is like a small light-coloured Rouen Duck, and scales under 2 lbs. They are very strong on the wing, and as you shoot them mostly in the cold weather, their plumage is carried more

closely on those days than on warm ones, and they require a heavy charge—big shot *and* straight powder—to account for them, especially for the second barrel, as Ducks coming up wind to decoys recover themselves and ‘go about’ very quickly. . . . One method of Duck-shooting is not described, although it is very much in vogue in parts of the North Island. This is, being silently paddled up a river by a Maori in his canoe, and shooting the Ducks as they rise out of the rushes on either bank. It reminds one very much of the shooting in the Norfolk Broads, and no puntsman, however efficient, could possibly punt more silently than the Maori paddles. I have heard of using a steam launch in place of a canoe, but that, of course, can only be carried out on the larger rivers, and at best is only a very poor substitute for the Maori and his canoe, and it rather savours of a pleasure party down the Thames than a sporting expedition.

ORDER ANSERIFORMES.]

[FAMILY ANATIDÆ.

NETTIUM CASTANEUM.

(AUSTRALIAN TEAL.)

***Mareca castanea*, Eyton, Mon. Anat., p. 119, pl. 22 ♂, (1838).**

BEFORE leaving the Colony I received from Mr. Dall, of Collingwood, descriptive notes of a pair of Ducks that had been shot on the Aorere river in June, 1897. The birds having been mounted and set up in a case, he failed in his efforts to have them sent over to Wellington for my inspection. From the imperfect account furnished, the only species to which I can refer them is the Australian Teal, a bird which (according to Mr. Gould) is universally dispersed over the southern portion of Australia, and is equally numerous in some parts of Tasmania. Although Mr. Gould states that this Duck is not migratory in its habits, he describes it as “a bird of powerful flight”; so there would be nothing extraordinary in a pair of stragglers, under certain conditions, finding their way to New Zealand.

It is already recorded from New Zealand, in the ‘British Museum Catalogue of Birds’ (vol. xxvii., p. 254), on the authority of a specimen from Otago (an adult female) in the Hume collection.

NETTIUM GIBBERIFRONS.

(WOOD-TEAL.)

***Anas gibberifrons*, Müller; Buller, Birds of New Zealand, vol. ii., p. 261.**

My discovery of this bird in New Zealand, in 1866, will ever be associated in my mind with the completion by Dr. Featherton and myself of the historic purchase for the Crown of the Upper Rangitikei-Manawatu Block. We were camped near the mouth of the Oroua River, an

affluent of the Manawatu, preparatory to a meeting of the native tribes concerned in the sale, when I observed a pair of these birds near the bank of the stream, and was fortunate enough to secure both of them at one shot. It was years before I obtained any further specimens, for this Duck has always been a rare one in New Zealand. It was new to me, and being unable at the time to identify it with one of the known species, I described and characterised it under the name of *Anas gracilis*,* which appeared to me to happily express its distinguishing character.

There is a specimen in the Otago Museum in which the white alar bar expands, so that the white entirely covers the bastard quills.

Count Salvadori, 'Cat. Birds, Brit. Mus., vol. xxvii, p. 256,' says: "We must wait for additional information in order to settle the question of the specific difference between *Nettion castaneus* and *N. gibberifrons*."

Mr. North writes: "This species, both sexes of which so closely resemble the female of *Anas castanea*, appears to be distributed all over Australia, except perhaps the north-west portion. . . I know of no marks by which the immature birds of these species may be distinguished from one another; the spots on the under surface vary, even in the adult females of both."

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[FAMILY ANATIDÆ.

ELASMONETTA CHLOROTIS.
(BROWN DUCK.)

Anas chlorotis, Gray; Buller, *Birds of New Zealand*, vol. ii., p. 257.

THIS Duck is still very plentiful on the west coast of Wellington. I have seen a flock of two hundred or more in the Papaitonga Lake; but they have of late become very shy, and it is almost impossible to get near enough for a shot. During the day they generally remain concealed in the dense beds of raupo along the shores of the lake, coming out to feed in the evening. In the cool hours of the day, however, they may often be seen consorting in a large flock on the surface of the water.

A specimen which has come into my possession has nearly the entire head pure-white, while the rest of the plumage is normal. It is probably to a similar form that the following letter from Captain Mair (June 30th) relates: "For a whole week before the shooting season commenced we saw a pair of beautiful Ducks or Teal with *white* heads. I went out several times after them, but could not get nearer than sixty or seventy yards. The head and neck was white, like the female Paradise Duck, only it was a purer white, and the birds were small—hardly bigger than the Black Wigeon. They were very conspicuous, and could be noticed a quarter of a mile off. We saw them nearly every day for a fortnight. But unfortunately two men came to my place [on the Manawatu River] on Good Friday and shot all over it during my absence, and I fear they must have killed or wounded these birds, for we have seen nothing of

* *Ibis*, 1869, p. 41.

them since. When observed these birds were always in company with about a dozen Spoonbill Ducks."

I am indebted to Captain Mair for another partial albino of this species, which was shot by him on a lagoon near the Manawatu River. It has the forehead, sides of the head, nape, and hind-neck white; shoulders and mantle having white feathers intermixed with the brown, the former preponderating; rest of the plumage normal.

A specimen which passed through my hands some time ago (now in the Rothschild Museum) has the sides of the head, crown, nape, and upper part of neck pure white, varied only by irregular patches of brown extending from the base of the upper mandible to the eyes, and thence across the vertex. Most of the small wing-coverts, also one secondary and one primary in each wing, are pure white; there are also touches of white near the tips of the other quills. The rest of the plumage is normal, except that the margins of the dorsal feathers are somewhat lighter than in ordinary birds.

Hearing from Mr. Brough, of Nelson, of the capture of a "Crested Teal," I was naturally anxious to see it, and, through his kind assistance, the specimen was sent over for my inspection. It turned out to be *Elasmonetta chlorotis* in a condition of partial albinism, the head being largely marked with white. But the curious thing is that, by a freak of nature, there is a well-developed "top-knot" of feathers on the hind part of the head standing fully half an inch above the surrounding plumage. This top-knot, which extends forward into a line with the eyes, is white, with some irregular splashes of brownish-black, and the vertex and cheeks are also more or less variegated with white. The rest of the plumage is normal, the rounded spots on the breast and under-parts being particularly prominent, and the white edging on the speculum very conspicuous; and there is a creamy-white ring encircling the neck. I published a drawing of it in the 'Transactions N.Z. Institute,' vol. xxix., plate xi.

On the occasion of a visit to the Manawatu Gorge, I saw, in broad sunshine, a pair of these Ducks disporting themselves in a dark pool overhung with tree-ferns and other vegetation. But, as a rule, they remain in retirement during the day and come out at dusk. A Rangitikei correspondent informs me that this Teal has almost disappeared from that district. He adds: "As soon as they come out from their haunts, under the raupo in the swamps, they get shot. They are too simple for the changed times, and are fast succumbing to the inevitable. At the end of October I saw a brood of them, nearly full-grown." The last pair I obtained were shot by one of my sons at Ohau. These were forwarded, in spirit, to Professor Newton, and enabled him to make an interesting discovery as to the affinities of this form with *Nesonetta aucklandica*.

Nestling.—A specimen in the Wanganui Museum has the head, neck and general upper surface blackish-brown with lighter shaft-tips; line round the eyes, throat, abdomen and vent, yellowish-brown. Bill dark brown, with pale brown spot at tip of upper mandible. There is an indistinct line of pale brown on the outer edge of each wing, and an obscure spot of the same on each side of the rump, with a still more obscure one behind the insertion of each wing. Feet dark brown.

Progress towards maturity.—Another specimen in the same collection, half-grown but still unfledged, has the spots on the upper surface larger and more pronounced; plumage of the upper parts darker, and that of the under parts generally lighter than in the nestling described above; tail one inch long, upcurved and fluffy; a distinct streak of brown through each eye.

Obs.—The young male has generally lighter plumage than the adult bird, and entirely lacks the rich vermiculation on the sides of the body and flanks. The head and neck, while darker than the rest of the plumage, have none of the metallic lustre characteristic of the adult male. The eyes have a narrow circle of white as in the adult female. The breast exhibits the brown spots of the adult, but the ground colour is several shades lighter, and lacks the bright chestnut

hue. Lastly, the neck circle of white and the white spot on each side of the vent are absent in the young male.

As far back as 1885 I made the following entry in my note-book :

"It seems pretty clear that the little Brown Teal is a species quite distinct from *Anas chlorotis*, and that it has hitherto been confounded with that bird, because both sexes, which are alike in plumage, resemble very much the female of *Anas chlorotis*. This conclusion was originally forced upon me when I examined the collection of birds formed by Dr. (now Sir James) Hector, on the west coast of Otago, and exhibited by the Provincial Government at the New Zealand Exhibition of 1865. But doubts were afterwards thrown upon the subject, and I did not venture to characterise the species as new. My attention was called to the matter again years afterwards by Mr. Reischek, who had brought a pair with him from Dusky Bay, and assured me that he had carefully determined their sex, by dissection, as male and female. Yesterday (April 23rd) I purchased a pair exposed for sale in a poulterer's shop in Wellington. On dissection they proved to be male and female. The male measured : length, 19.5; extent of wings, 27.5. The female measured : length, 17.75; extent of wings, 25.75. There is just the doubt whether the sexes may not be exactly the same in the young of *Anas chlorotis*; but, as against the supposition of these being immature birds, is the fact that I found the skin so tough and so firmly attached to the body that I had some difficulty in getting it off." Later on, I find an entry of another specimen which came into my hands as a skin, and yielded the following measurements : length, 18.25 inches; wing from flexure, 7.5; tail, 3.5; bill, along the ridge, 1.5, along the edge of lower mandible, 1.75; tarsus, 1.5; middle toe and claw, 2.

In the 'Birds of New Zealand' all I ventured to do was to mention this Duck as "an apparently smaller form" of *Elasmonetta chlorotis* (vol. ii., p. 258, note). Although it is pretty clear that the birds are distinct, I am still unwilling to set up a new species till I have obtained absolute proof.

Years ago there were hundreds of acres of 'kahikatea swamp' in the Manawatu district, the ground covered with creeping clumps of kiekie (*Freycinetia banksii*)—with pools of stagnant water between—a favourite resort of this Duck, whose only enemy in these dark labyrinths was the Maori snarer, who, from long experience, knew exactly where to lay his flax springes. In connection with this an amusing episode occurs to my recollection. In 1871-2, with the progress of settlement, railways were being constructed all through the country, and a new line, extending from Foxton to Palmerston North, passed right across one of these 'kahikatea' swamps. The Maoris, who had enjoyed a monopoly of the Duck snares there for years, made a grievance of this, alleging that their vocation was practically gone. The Native Resident Magistrate, in his anxiety to meet the prejudices of all concerned and to avoid friction, advised the Government to appoint a Royal Commission to enquire into the merits of the claim and to make an award; and a highly respectable local resident—a well-known philo-Maori—was selected to act as Royal Commissioner. Being in practice as a Barrister at the time, I happened to be retained to conduct the case for the native owners of the land, who had claimed a large sum for what was technically termed 'damages by severance'; and, as the Commissioner spoke Maori fluently and all those interested in the claim were Maoris, I was allowed to conduct my case in their language. I well remember how amused the Maori audience was as I pictured the alarm among the unsophisticated Tetewhero (Brown Duck) at the invasion of their kiekie-domain by the 'iron horse'—how their haunts, no longer secluded and tenable, were by degrees abandoned, to the sore detriment of the Maori fowler—how, in short, the march of civilisation was ruining everything! Nor shall I ever forget their delight when the Royal Commissioner, whose Maori sympathies were touched by this Maori appeal—to the horror of the Native Resident Magistrate, who was sitting beside him—awarded to the aggrieved claimants the whole amount asked for, with costs in addition!

NESONETTA AUCKLANDICA.

(AUCKLAND-ISLAND DUCK.)

Nesonetta aucklandica, Gray; **Buller**, *Birds of New Zealand*, vol. ii., p. 263.

I HAVE had an opportunity of examining a large series of skins of the small flightless Duck, collected by Mr. H. H. Travers at the Auckland Islands, the group to which this species is strictly confined. The sexes in the adult state do not differ much from each other, both exhibiting the delicate reflections on the plumage of the upper surface; but the male may be distinguished by its darker head and neck, by the black under tail-coverts, and by a greater abundance of vermiculated markings on the sides of the body. The young male, as I discovered, has exactly similar plumage to the adult female, the head being of the same brown colour as the body, with a paler throat. There is likewise an absence of black on the under tail-coverts. The adult plumage is probably assumed in the second year.

As with the insects of Madeira, mentioned by me in the Introduction, so with this Duck: long disuse has rendered the wings useless for purposes of flight; but, as if to compensate for this, the species possesses the unusual faculty of being able to climb—an accomplishment which no doubt would be of far more advantage to the bird in its rocky habitat, surrounded by the ocean, than the power of flight. I made the discovery by the purest accident. The late Captain Fairchild, on the return of the 'Hinemoa' from one of her visits to the Auckland Islands, presented me with a living pair, which I immediately placed on the Papaitonga Lake, in the hope that they might breed there. I afterwards purchased a pair from one of the crew, and, being desirous of sending these to Europe, I placed them in a wire enclosure, over three feet high, in a secluded part of my garden. I noticed that they at once commenced to scale the perfectly upright netting, falling back into the yard as they neared the top of the fence. Never supposing that they would get over the fence, I left them in the enclosure. In the morning the male bird, being the more robust of the two, had made its escape, and I had little hope of ever seeing it again, there being much close covert in the garden. A few evenings afterwards I found both birds again in the yard, the fugitive having evidently climbed back into the enclosure for the purpose of sharing his mate's food. In the morning he had disappeared again. This continued for about ten days, the bird (which is semi-nocturnal in its habits) skulking and hiding during the day, and coming back in the evening to share the food. When I was ready to ship the Ducks I had simply to visit the enclosure after dusk, and then, catching them without difficulty, they were cooped and despatched to London by the R.M.S. 'Tainui.'

My captive birds never made any attempt to use their wings, although they had every opportunity. Those who have seen the bird in its native home state, however, that it does perform a fluttering flight for a few yards along the surface of the water.*

* Dr. Hans Gadow writes ('Nov. Zool.' ix., p. 170): "I have come to the conclusion that *Nesonetta* is in the act of diminishing its wing-area by reduction of the number and size of its primaries, from the examination of three spirit specimens and six skins. None of the specimens are in moult. . . . The right and left wing are not always symmetrical, there being specimens with ten good functional primaries on one side and with only nine on the other wing, or with nine and eight functional quills, or with nine, or lastly with only eight functional quills on either wing. . . . Perhaps not every individual does undergo this process of reduction which attacks successively the eleventh quill, which is now almost universally obsolete in birds, then the tenth, and now in *Nesonetta*, even the ninth quill. In this respect *Nesonetta*, now unfortunately on the verge of extermination, exhibits a most interesting parallel with its equally unlucky contemporary the Flightless Cormorant [*Phalacrocorax harrisi* of the Galápagos Islands]."

I have been fortunate enough to procure a nestling. The body is covered with thick down, with long central filaments, especially on the upper parts. The general colour is dark olivaceous-brown, fading to pale fulvous-brown on the throat and fore-neck, and to dull fawn-colour on the breast and abdomen. There is a purer shade of dark-brown passing through the eyes and melting away behind. The rudimentary wings have an outer fringe of yellowish-brown; the produced filaments on the shoulders and mantle are of the same pale colour. The bill is dark-brown, with the terminal shield and the whole of the under mandible yellowish-brown. Legs and feet olivaceous-brown, the webs being darker; claws, yellowish-brown.

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[FAMILY ANATIDÆ.

SPATULA VARIEGATA.

(NEW-ZEALAND SHOVELLER.)

Rhynchaspis variegata (Gould), **Buller, Birds of New Zealand, vol. ii., p. 269.**

ONE of the partial albinos in my collection is almost exactly like *Spatula clypeata* of Europe, in the extent and distribution of the white plumage.

For three seasons in succession a pair of these beautiful Ducks nested among the sedges, almost alongside of my boat-house at Papaitonga, and brought up their young in safety, the brood coming out in the last week of November.

Two partial albinos of this species received from Lake Ellesmere are very remarkable and beautiful objects. No. 1 differs from the ordinary bird by the absence of the white cheek-mark, the head and neck being entirely black, with green metallic reflections. The whole of the breast—front, sides, and a narrow collar at the back—white, with scattered horseshoe markings of dull chestnut-brown, the white being boldly defined against the black of the fore-neck, but on the lower margin melting insensibly into the chestnut-brown of the sides and abdomen; large upper wing-coverts white, with broad crescentic bands of blackish-brown; the scapulars with a very broad stripe of white down the centre. No. 2 has a dark head and neck, with green metallic reflections, but differs from the other in having the whole of the shoulders and scapulars pure white, there being only a dividing-stripe of the normal colour down the spine; the long scapulary plumes are pale-blue on their outer and white on their inner vanes. The blue on the small wing-coverts presents a broad surface, and the angular patch of white between that and the speculum is very conspicuous. The dark colour of the head and neck is sharply defined against the white plumage below it. There is a large patch of pure white on each side of the rump, which has dark-green reflections; and the tail-feathers are greyish-white on their outer webs.

In the 'Records of the Australian Museum' (1892-3, p. 37) we read:

The Australian Museum received from Dr. L. Holden, of Circular Head, the skin of a male New Zealand Shoveller, *Spatula variegata*, Gould, that was obtained amongst others of the same species by Mr. Thomas

Carr, on the 20th of June, 1892, at One Tree Point, on the river Tamar, near Launceston; numerous individuals of which were seen in the neighbourhood during the past winter. This species may be distinguished from the *Spatula rhynchotis* of Australia and Tasmania, to which it is closely allied, by being less robust and slightly smaller in its measurements; the feathers of the lower portion of the neck and mantle are white instead of fulvous-brown; the short scapulars also have a large amount of white on them, and the elongated scapulars are plume-like and more conspicuously marked with a broader lanceolate satiny-white stripe. The single male bird received from Mr. Walter Mantell in 1856, upon which Gould founded the species, is evidently an exceptional one, if his figure of it in the 'Supplement to the Birds of Australia,' plate lxxx., be correct; it shows a far larger amount of white upon the lower portion of the neck, mantle, scapulars, and breast, than specimens since obtained in New Zealand or the one at present under consideration; the latter being similar in size and slightly brighter in colour to a mounted specimen in the Museum obtained from the North Island of New Zealand, and approaching nearer to the figure given by Sir Walter Lawry Buller in his 'Birds of New Zealand,' 2nd Edition, vol. ii., plate xliii., page 269, which he stated had been taken from a 'fine male in the best condition of plumage.'

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[FAMILY ANATIDÆ.

AYTHYA AUSTRALIS.

(WHITE-EYED DUCK.)

Nyroca australis, Gould; Buller, *Birds of New Zealand*, vol ii., p. 275.

A SPECIMEN lately forwarded to me was obtained in the Wairarapa Lake, and I had previously received one from Otago. There are several examples in the Canterbury Museum, all from Lake Ellesmere. There can be little doubt that this Duck is a wanderer from Australia.

Writing of the species in that country, Mr. Gould states that it loves quiet reaches where the water runs slowly, bays and inlets of the sea; and that it is an expert diver, collecting much of its food from beneath the surface of the water, and readily descending to the bottom in search of small mollusca, crustaceans, insects, and aquatic plants, on which it chiefly subsists.

The species occurs also in Tasmania, New Caledonia and the Papuan Islands, extending northward as far as Waigiou.

Mr. A. J. Campbell, in his 'Nests and Eggs of Australian Birds,' writes (p. 1051): "The White-eyed Duck is an exceedingly swift flyer. The lightning-like rapidity with which a flock sometimes flies down stream, especially with a good breeze behind, often baffles the best sportsman for a successful shot."

The following description of the egg is given by Mr. Ramsay on the authority of Mr. Whittell, who was well acquainted with this bird, and had no doubt as to the authenticity of the egg in question: "The eggs are large for the size of the bird, have a glossy look and feel greasy to the touch; they are of a light-cream colour, rather oval, swollen, both ends nearly alike; in length (a) 2.52 by 1.88 in.; (b) 2.5 by 1.8 in."

FULIGULA NOVÆ-ZEALANDIÆ.

(NEW ZEALAND SCAUP.)

Fuligula novæ-zealandiæ (Gmelin), **Buller, Birds of New Zealand, vol. ii., p. 273.**

ON the Papaitonga Lake—where, owing to the rigid protection,* this Duck is very numerous—a Scaup (“Wigeon” of the Colonists) brought out a brood of five young ones about the middle of December. The old bird was to be seen daily swimming about near the boatshed followed by her little family, huddled together in a clump as it were, and at the slightest appearance of danger the ducklings would instantly dive and reappear on the surface further out on the lake. Early one morning, on going down for a plunge in the water, I had an illustration of the force of maternal instinct in this bird. On opening the door of the boathouse leading to the springboard I surprised the duck and her brood disporting themselves in the water only ten or twelve yards out. On my appearance the young birds instantly dived, whilst the old bird, evidently to divert attention from its brood, came swimming up to within a few feet of me with its mouth open and uttering a low cry. In the meantime the young had got to a safe distance under water, and then came to the surface again, when the parent, seeing that the apprehended danger was past, quietly joined them. On mentioning this circumstance to my son, he told me that he had witnessed a somewhat similar device on the part of the same bird only a short time before. On this occasion two sporting dogs took to the water and swam out in the direction of the young brood. The old duck at once rose in the air, flew up to the dogs, and kept circling round them, so as to distract their attention, till the young birds were well out on the lake.

HYMENOLÆMUS MALACORHYNCHUS.

(MOUNTAIN DUCK.)

Hymenolæmus malacorrhynchus (Gmelin), **Buller, Birds of New Zealand, vol. ii., p. 276.**

THIS is one of those recluse species that must ere long disappear entirely. Mountain- and bush-streams, like that shown in the subjoined photograph, form the natural haunt of this singular Duck. From localities mentioned in my first edition as its favourite resorts—such as the Manawatu Gorge—it has long since disappeared; and as settlement extends inland, it must of necessity retire still further back till, in the end, it will vanish altogether.

In the summer of 1863, in company with the late Dr. Featherston, I made a trip through the Manawatu Gorge in a canoe, paddled by Maoris, and propelled by poles in the more rapid parts. Here I made my first acquaintance with this Duck and obtained a beautiful series of specimens, now in my type-collection in the Colonial Museum. At that date the walls of the gorge, some six or eight miles long, were covered with lovely vegetation, untouched by the hand of man, to

* A recent New Zealand newspaper has the following paragraph: “It is said that Lake Alexandrina, in the Mackenzie country, which is reserved as a sanctuary for native game, is teeming with wild fowl, the birds seeming to know that they are out of harm’s way when on the waters of this lake. At Milford lagoon, near Temuka, the same thing is seen. When the shooting season opened the lagoon presented a sight worth witnessing, being literally black with ducks.”

the very water's edge. Years later, a broad road was cut through, on the south bank, for Cobb's coaches, and now on the north bank the Manawatu Railway—high above the level of the river—takes its sinuous course, and the Mountain Duck knows a home there no longer!

A specimen of this Duck from Dusky Sound which passed through my hands differed from ordinary examples in having the whole of the plumage of a silky texture, and the entire breast in front and on the sides thickly studded with dark chestnut-brown spots, becoming almost confluent in places.

Mr. W. W. Smith's experience is similar to my own, for he writes of this Duck: "When wounded they are expert divers, diving in the rapid waters and re-appearing long distances down stream."



HOME OF THE MOUNTAIN DUCK.

I have elsewhere, in writing of the Penguins, stated that I consider the King Penguin (*Aptenodytes patagonica*) the most gentle of the group. Among the Ducks, this distinction undoubtedly belongs to the Mountain Duck. The following incident is sufficient evidence of the fact. On the 13th October I was shown by the men at the survey camp a nest of this species in a hollow log lying about twenty yards from the stream, at Rikiorangi, some seven or eight miles up

the Waikanae River. The Duck was on the nest, which was composed of soft down, torn from her own body, and there were four eggs, one having been previously broken by the finder. On being captured, the Duck, although apparently much frightened, uttered no sound, and made no attempt to escape. We brought her to Wellington shut up in a canvas bag, and, on being taken therefrom some hours later, she sipped water from a drinking-cup in the most unconcerned way. On being placed in a cage with her nest and eggs, she immediately claimed possession, and continued to sit, with few interruptions, for several days. But the eggs, which had been long incubated when taken, must have got chilled in transmission, for the duck, having apparently discovered that they were lifeless, first turned one out, and then abandoned the nest. I do not know of any species of wild Duck that, under similar circumstances, would have resumed, even for a time, the labour of incubation. Had the bird been left undisturbed she would have hatched out her young in about a week or ten days. Some clutches, however, are earlier, for in the stream near which this nest was discovered, a pair of Mountain Duck had been disporting with five young ones for more than a week before our arrival.

Young.—A young bird in my collection, which still has the first down adhering to the vertex, throat, and sides of the head, has the colours much duller than in the adult; the spotted rufous markings on the breast are less diffuse and are continued obscurely down the abdomen to the under tail-coverts, which are entirely dull rufous. The shoulders are speckled with dusky black, and there is a slight metallic gloss on the upper surface, the bird being probably a male.

Fledgling.—The colours are those of the adult, but paler. The long, soft, white down is still present on the throat and lower side of the cheeks, whilst broken or irregular lines of the same proceed from the frontal base and from the sides of the upper mandible, and become scattered beyond the eyes. The dull olive-green down, with long disunited filaments, still adheres to the crown and other portions of the upper surface, being most pronounced immediately above the tail. The bill is slaty-brown (in the dried specimen), the terminal points of both mandibles and the serrated edges being dull yellow.

Speaking generally, the young of the first year has much less chestnut on the breast than the adult bird, all the true pectoral and surrounding feathers having only a minute spot of rufous with a point of black beyond, giving a speckled appearance to that part of the body; the head is washed with brown, and so is the mantle; the irides are dark-brown instead of being golden-yellow; and the bill is bluish-grey instead of white.

In the adult state the male bird has a fine metallic-green gloss on the head, neck, and upper surface generally, being brightest on the crown and on the mantle. The female has less gloss, having a wash of bronzy-brown on these parts, this colour being most pronounced on the crown of the head and mantle. A young male (of the first year) has the same brown tinge on the upper surface, but less than in the adult female. In the mature bird the bill, with the exception of the dark terminal membrane, is in life of a beautiful pinky-white colour; in the young bird it is of a bluish-white, with a narrow streak of brown down the centre. Both sexes have the soft feathers which compose the inner lining of the wings more or less tipped with rufous; the male has the under tail-coverts broadly tipped with rusty-red, whilst in the female bird these markings are absent; in the young of both sexes the under tail-coverts are entirely of that colour. The male has the chestnut-red pectoral markings more distinct than in the female. In the young bird they are considerably diminished, each feather having only a minute touch of rufous, with a spot of black beyond, imparting to the breast a speckled effect. The irides of the young bird, which are originally dark, change rapidly to a dull olivaceous-yellow, which becomes golden at maturity. The old birds on being caught utter a peculiar rasping cry; the young has a similar note, but weaker, and when alarmed emits a distinct squeal. The ordinary note of the species is a sibilant whistle, whence it derives its native name, "Whio."

An old bushman expressed to me his conviction that the Mountain Duck repairs year after year to the same nest, placing new layers of flags and weeds upon it. On pulling a nest of considerable size to pieces, he found fragments of egg-shell at lower levels, as if indicating former occupations. The eggs vary slightly in size, but 2·3 in. in length, by 1·5 in. in breadth may be taken as a fair measurement. They are of a beautiful ovoido-elliptical shape; and, on being washed, the surface presents a delicate pale cream-colour, the green tinge referred to in the 'Birds of New Zealand' (vol. ii., p. 278) being apparently due to soiling by contact with the bird's feet. One of these specimens also exhibited a decidedly green tinge before being washed.

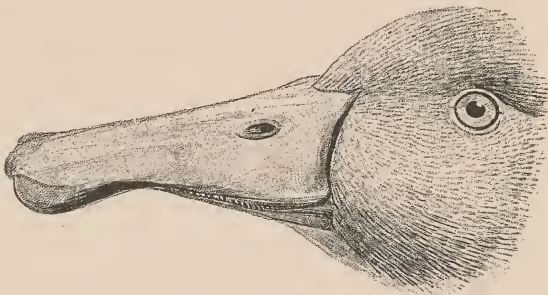
Mr. Ernest DeLautour, in an interesting letter on Trout-fishing, which he recently communicated to the Press, mentions this Duck. Writing from a 'toetoe' hut, on the banks of the Tongariro River, he says that for two months eight Mountain Ducks remained constantly at his very door. So far from being indifferent divers, as was supposed, he states that they used to spend the whole of every morning in diving after food, at which they were even more expert than the Shag. He adds: "Bitterns are very numerous, and once one walked into my 'whare,' and on my catching him, with a bag, vomited up nine small carp, with two of which I killed a brace of trout."

Mr. Guthrie-Smith, who is evidently a lover of birds, says in his published account of 'Bird-life on a Run':—

Although the Whio, or Whistler, as the natives call it, is fairly plentiful, I have only known one occasion—after a violent southerly gale, when a brace of them appeared on the lake—of its being seen away from the haunts peculiarly its own, the rushing, shadowed creeks half-blind with fern and koromiko. I have given orders that this delightful bird shall be in no way molested, for there are few sounds more characteristic of wild New Zealand than the startled half-indignant whistle of the Mountain-duck. Dipping from the summer's sultry heat into some deep fern-feathered gorge, I have often paused to watch him. The little waterfalls dash into diamonds on his slate-blue plumes. He is thoroughly at home in the bubbling champagne pools. Where the swift stream shows every polished pebble clear he can paddle and steer with ease.

I received from Waikanae on Saturday, the 12th December, an adult pair of the Mountain-duck, with a bird of the first year, and a fledgling from another brood. The last-mentioned accidentally hung itself in the wire-netting of its enclosure. The others were very shy at first, but soon adapted themselves to their new life, and took readily to their diet of cooked potato and rice. When alarmed they uttered a loud whistling cry—especially the young bird; at other times their note was a low rasping one, like the sound produced by drawing an object quickly against the teeth of a large comb.

There is a nestling of this species in the Auckland Museum. Entire upper-surface olivaceous brown, the down-filaments being long and coarse; under-parts yellowish-white, tinged with brown on the breast; sides of the face yellowish-white, with a conspicuous blackish-brown streak through the eyes; there is an obscure crescent-shaped mark of white behind each wing, and another of a more rounded form on each side of the rump. The tail consists of small feathers with downy filaments. Bill, brown; under-mandible, pale-yellow; legs, yellowish.



HEAD OF MOUNTAIN DUCK.



AUCKLAND-ISLAND MERGANSER.

257 *Querquedula* MERGANSER AUSTRALIS.

(ONE-HALF NATURAL SIZE)

p. 142

MERGANSER AUSTRALIS.

(AUCKLAND-ISLAND MERGANSER.)

Mergus australis, Hombr. and Jacq.; **Buller, Birds of New Zealand**, vol. ii., p. 279.

THE Auckland Islands, comprising altogether about 400 square miles, lie just 200 miles south of Stewart Island.

They no doubt represent one of the outlying remnants of an ancient and now submerged continent, so that geologically they are as old as New Zealand. They are fully exposed to the thundering surges of the South Pacific Ocean all the year round and, although natural erosion is of course taking place, they have so far resisted the ravages of time and tide, and bid fair to last as long as New Zealand.

According to Sir James Hector, Auckland Island is the remnant of a great volcanic cone that was 12,000 feet in height and fifty miles in diameter in early Tertiary times, the chief centre having been about eight miles west of Disappointment Island. He calculates that four-fifths of the original mass has been removed by the denuding force of the westerly waves.

These islands are very interesting to the naturalist, for—apart from their being the resort at certain seasons of the year of countless seals and sea-birds—they have produced several peculiar endemic species, such as the Flightless Duck (*Nesonetta aucklandica*), the Fulvous Rail (*H. muelleri*) and a sedentary species of Snipe (*Gallinago aucklandica*), whilst in the still waters formed by the narrow inlets along the coast a species of Merganser (*M. australis*), not known in any other part of the world, is still occasionally to be met with. This bird has always been rare in collections; but of late several beautiful specimens have been forwarded to the British Museum by His Excellency the Earl of Ranfurly.

I have in my collection an adult male, an adult female, and a nestling. There is a good specimen in the Colonial Museum, and a pair in the Otago Museum. The British Museum collection contains now a series of four. There are three specimens in the Tring Museum, a pair in the Imperial Museum at Vienna, and a single specimen in the University Museum at Cambridge. Besides those in my own collection this completes, as far as I am aware, the known record of this endemic species.

The specimen in the Otago Museum has darker plumage than either of my specimens. It may probably be a younger bird, for there is scarcely any appearance of a crest. It has a narrow white speculum. There is no sex given, but I take it to be a male. The feet have been painted dull red by the taxidermist, who is a very careful observer; the base of the lower mandible paler red, the rest blackish-brown.

It is very desirable that specimens of this interesting form should be obtained for our museums before it is too late. Although the Government steamboat makes periodical visits to the Auckland Islands, its only known habitat, and eager search is made, the bird is scarcely ever seen; but in the absence of the natural enemies, which abound elsewhere, there is no reason why the species should become extinct.

Nestling.—I have in my collection a nestling apparently about a week or ten days old. It is covered with thick, long, and somewhat glossy down. The upper part and sides of the head, the hind-neck, and the entire upper surface and sides of the body, dark olive-brown; throat and fore-neck and spot under each eye, bright rufous, fading away towards the breast; under-

surface yellowish-white; wings dark olive-brown, marked along the outer edge and longitudinally on the under-surface with yellowish-white. Bill very dark olive, shaded with brown on the ridge, the terminal shield on both mandibles reddish-brown, with a polished surface; legs and feet dull olive-brown, paler on the toes, the interdigital webs darker, and the claws yellowish-brown. It must be noticed that the toothed character of the mandibles is well developed even in the nestling.

At a meeting of the Zoological Society, in January, 1881, Baron A. von Hügel's specimen from the Auckland Islands (now in the Zoological Museum at the University of Cambridge) was exhibited. Dr. Sclater remarked that the colouring of the plate in the 'Voyage au Pôle Sud' seemed rather too bright. He further observed ('Proc. Z. S.,' 1881, p. 1): "*Mergus australis* appeared to come nearest to *Mergus brasiliensis*, as already indicated by Hombron and Pucheran, but differed in its brown head, the longitudinal (not transverse) markings below, and longer bill. As regards the form of the tail, commented on by Hombron and Pucheran, there seemed to be little difference between the two species."

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX NOVÆ-HOLLANDIÆ.

(SEA SHAG.)

Phalacrocorax novæ-hollandiæ (Steph.), **Buller, Birds of New Zealand, vol. ii., p. 145.**

THIS Shag, which is so abundant further North, is extremely scarce in Foveaux Strait and in Stewart Island. My collector sent me a specimen, as a great rarity, among a lot of *Phalacrocorax huttoni* and *P. chalconotus*. This was marked "female," and it had a more pronounced nuchal crest (or "mane," as the collector termed it) than I had ever before noticed. It had the naked face, or lores, of a uniform dull yellow; the irides pale green; membrane behind the eye and covering the base of the lower mandible, bright yellow; culmen black; sides of upper and the whole of lower mandible, very pale grey; legs and feet black. The tawny throat indicated the sex.

In the Canterbury Museum is preserved a sea-trout (*Salmo fario*) taken from the gullet of one of these Shags when shot on the coast. The fish measured 14.5 inches in length, with a girth of 7.75 in., and the weight was 1½ lb.*

* In October, 1893, the following paragraph appeared in 'The Globe' newspaper, relating to the closely related *P. carbo*, of Europe, or, as some ornithologists hold, the same species as ours:—

"The Cormorant who took up his abode on the weather-cock of Newark Church, at the beginning of the month, is, says a correspondent, still there. By day he remains motionless, like Patience on a monument, or St. Simeon Stylites; by night, it is conjectured, he flaps his way to the neighbouring Trent for food. It is satisfactory to know that the men of Newark have kept their fingers from pulling the trigger. Let them continue to do so, lest the doom of the Ancient Mariner be upon them."

Till recent years there was a great breeding place of this species in a clump of rimu trees on the north shore of the Papaitonga Lake. I observed that, soon after sunset, the Shags came in, singly or in parties, from the sea to roost for the night on the naked branches of these trees. When they arrived there was always much contention and confabulation for places. On the wing, when a pair are in company, the appreciably larger size of the male is manifest at a glance.

I had on one occasion an instance of the marvellous vitality of this bird. I was standing, gun in hand, on the western point of the island in Papaitonga Lake, when I observed one of these Shags at a high elevation coming in from the sea. Taking a very long shot, I gave him the choke-barrel, and saw at once that my bird was hard hit, for he immediately doubled back and made for the sea. After a flight of nearly half a mile, at full speed, he came down into the lake with a splash, and on being picked up shortly afterwards was found to be shot in the head.

As already stated, I have received a female of this species in full plumage with a well-defined nuchal crest, from which it is clear that both sexes possess this adornment at the breeding season.

When I was at Papaitonga at Christmas, 1897, the mill-hands were felling some lofty rimu-trees on the northern side of the lake—15 or 20 chains from the water—on which the Sea-shags, for many years past, had fixed their “rookery.” I regretted very much to see these trees come down, but they were beyond my boundary, and I could not interfere. The young birds had not yet quitted their nests, although they were well advanced—covered with thick black down, and with quills and tail-feathers several inches long.

The female has the throat buffy white; the neck, grey and brown intermixed; the breast and upper part of abdomen, creamy white; and the abdomen, grey and black intermixed.

Young of the first year.—Bare skin on the face and at the angles of the mouth, as also that covering the gular sac, vivid orange yellow, darker round the eyes and on the lores, the latter sparsely covered with minute feathers, and divided lengthwise by a streak of brown, extending from the eyes to the base of the upper mandible; irides brownish grey; tongue and inside of mouth dull yellow; legs black.

This is, I think, the only native bird to which protection ought not to be extended. The same experience has doomed the bird on this side of the world, as witness the following paragraph in an English paper:—

The Isle of Wight County Council has decided to apply to the Secretary of State for an order withdrawing the statutory protection to the Cormorant, owing to its destructiveness to fish. Admiral Sir A. de Horsey, however, pointed out that the Cormorants were very useful in warning mariners in case of fog that they were nearing land.

Of the genus *Phalacrocorax* Captain Hutton writes* :—“New Zealand waters contain more different kinds of Cormorants, commonly called Shags, than the waters of any other part of the world. While we have fifteen species, there are only twelve in North and South America, seven in Asia, six in Africa, five in Australia, and three in Europe. The large number of species in New Zealand is attributed to two causes. First, this country was the meeting-place of two migratory streams, one from the Malay Archipelago and New Caledonia, the other from Patagonia. Secondly, New Zealand has been broken into a number of islands, lying at considerable distances apart, and these have been isolated for a very long time.”

* ‘Animals of New Zealand,’ p. 286.

PHALACROCORAX VARIUS.

(PIED SHAG.)

Phalacrocorax varius (Gmelin), **Buller, Birds of New Zealand, vol. ii., p. 149.**

It is a very curious fact in local distribution that this species of Shag is commonly found only at the far north and in the far south. On a visit to Stewart Island in February, 1897, I met with several rookeries of this species in Paterson's Inlet. The birds were rather shy, but I was able to get some by rowing in a boat straight up to the overhanging trees, and, having brought the birds out of the rookery, shooting them as they circled overhead. I obtained two pairs, and as they were in good plumage I converted them all into specimens. In both sexes the high colouring on the soft parts of the face is very conspicuous. In front of the eyes there is a broad, pear-shaped, bare patch of vivid orange, and the rest of the naked membrane enclosing and surrounding the eye is of a bright mazarine-blue, changing to turquoise-green on the eyelids. The irides are clear sea-green. I measured the larger male, with the following result: Extreme length, 33 in.; extent of wings, 51 in.; wing from flexure, 12.5 in.; tail, 6.75 in.; bill, along the ridge, 3 in.; along the edge of lower mandible, 4 in.; tarsus, 2.25 in.; longest toe and claw, 4 in. The female is similar to the male, but somewhat smaller in all its proportions.

In one of the rookeries we visited, a beautiful White Heron had taken up its position among the Shags, but it was very shy and took wing long before the other birds had quitted their nests.

The nest of this Shag is comparatively small for the size of the bird, and is composed of dry twigs laced together, becoming so compact under the pressure of the sitting bird that it is a difficult thing to dislodge it from the tree. The cavity is rather deep, and carefully rounded off on the inside. I could only examine one of them, which the boy, who had partially climbed the tree, succeeded in dislodging with the boat-oar.

I obtained only two eggs, and these were too much incubated to be blown. They are ovoid-elliptical in shape, but with a distinctly smaller end, measuring 2.37 in. by 1.37 in. The shell is of a pale-green colour, but this is much obscured by a rough, chalky matter which is pretty evenly distributed over the entire surface. Both of the eggs were much soiled through contact with the birds' feet, and they contained embryos apparently just ready for extrusion. This was at the end of February.

On my last visit to the Bay of Islands—in September—I was struck with the scantiness of bird-life. Here and there a solitary Sea-gull was to be seen floating on the surface of the water, and as we steamed up to Russell in the tender we saw a few Pied Shags: that was all. Of the latter there was a young one near the landing-wharf which continued to fish within a few yards of the boat during the whole of our visit, lasting a couple of hours. Timing it with a stop-watch, I found that each dive occupied, as a rule, thirty seconds.

On glancing over my diary for 1894 I find that I made similar observations on a Shag in another part of the world:—

"17th February.—Capetown. The bay was alive with the common Sea-gull and a species of Shag (*Phalacrocorax capensis*). I was interested in watching the fishing operations of the latter. When it dives it springs bodily out of the water and goes down head foremost. I timed the dive with my watch. It generally lasted from a minute to a minute and a half, but in one instance

the bird remained under water a second beyond two minutes ! During the forenoon one of these Shags settled in a boat hanging in our davits, and suffered one of the sailors to capture it without offering any resistance. I handled it afterwards and found it quite docile, but it was in very poor condition, and probably out of health."

In the Wanganui Museum there is a specimen of this Shag obtained by the late Mr. Drew on the Waitara River. It is a young bird, but Mr. Drew informed me that he saw on the same occasion several adults there.

Mr. Cheeseman, the Curator of the Auckland Museum, who kindly sent me a couple of good specimens of *P. varius* for a special purpose, wrote:—"With the specimens I am sending you a rough, coloured sketch showing the colouration of the fleshy parts of the head, as seen in the most brightly coloured specimen we got. I find that the yellow is pretty constant, but as for the blue, no two specimens appear to have the same hue; it varies from dark azure to the slightest possible trace of this colour; and the differences do not seem to be due to either immaturity or sex."

Further on (at page 31) I have dealt with Mr. Ogilvie Grant's suggestion that my *Phalacrocorax huttoni* is the young of *P. varius* ('Cat. B. Brit. Mus.,' vol. xxvi., p. 331). Captain Hutton is equally wrong in treating it ('Animals of New Zealand,' p. 303) as the young of *P. carunculatus*, for that species is very local, and has never been found south of Queen Charlotte Sound. My type (now in the Otago Museum) was undoubtedly an immature bird, but it was not the young of either of these species. I am quite satisfied, in my own mind, that it is the same as that since described by Mr. Ogilvie Grant (*l. c.*, p. 331) under the name of *P. stewarti*, the beautiful Crested Shag inhabiting Stewart Island, and occasionally met with on the opposite coast. (See *infra*, pp. 30-32).

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.]

PHALACROCORAX CARUNCULATUS.

(ROUGH-FACED SHAG.)

Phalacrocorax carunculatus (Gmelin), **Buller, Birds of New Zealand, vol. ii., p. 155.**

THE late Captain Fairchild brought me a fine specimen of this Shag from Queen Charlotte Sound; and, as this is the first adult bird of that species I have had an opportunity of examining in the flesh, I give the actual measurements: Extreme length, 32 in.; extent of wings, 49 in.; wing from flexure, 12.75 in.; tail, 6 in.; bill, along the ridge, 2.9 in., along the edge of lower mandible, 3.75 in.; tarsus, 2.5 in.; longest toe and claw, 5 in. Irides clear hazel-grey; orbits of the eyes naked, slightly raised, and of a beautiful blue colour. The bare space surrounding the orbits and filling the lores has a roughened surface as if covered with minute papillæ, and is of a greyish-brown colour; on each side of the forehead these papillæ develop into small caruncles of a bright orange-yellow colour. Bill whitish horn-colour, changing to dull-brown on the ridge

and towards the angles of the mouth, and shading into bluish-grey towards the base of the lower mandible. The naked gular sac or pouch, divided by a feathered stripe running to a point near the junction of the rami, has a streaky appearance, being of a dark greyish-green colour. The legs are fleshy-white, the hind part of the tarsi and the under-surface of the toes being dull blackish-brown; claws dark-grey.

This bird proved on dissection to be a male; and, although killed in the height of the breeding-season, it exhibited nothing in the form of a crest, not even a lengthening of the coronal and occipital feathers. This confirms, I submit, the view put forward by me in the 'Birds of New Zealand' (vol. ii., pp. 153-160), in opposition to Dr. Sclater and other leading authorities, that this species is the true *P. carunculatus* of Latham, and must not be confounded either with the crested Chatham Island form, or with *P. cirrhatus*, Gmelin, from Magellan Straits.*

I received at the same time two immature birds—in the first year's plumage, which is very different from that of the adult. The alar bar of white is absent, and there are no dorsal spots. The blue orbits are wanting, and there is no appearance of caruncles on the side of the forehead; added to which, the loreal space, which is bare in the adult, has its surface covered with extremely minute feathers. The irides are dull greenish-grey; the sides of the lower mandible and the naked gular pouch, as well as the legs, are fleshy-white.

The breeding season of this species appears to extend over several months. In July, 1892, Captain Fairchild visited the White Rocks, and found both eggs and young in the nests. Of the latter he brought over about half a dozen, which were forwarded by His Excellency the Governor to the Zoological Society of London. On a more recent visit (some three months later) he again found both eggs and young. Of the former he has given me specimens.

They are of a delicate pale-blue colour, and a perfect ellipsis in shape, measuring 2.5 in. in length by 1.5 in. in breadth.

At a later date, in 1894, he brought me four young birds of different sizes, clothed in thick down. I sent them up to the Papaitonga Lake, hoping that they would thrive there and ultimately breed, but they did not long survive their change of home, being probably too young for the experiment. Two old birds, both females, had been shot by the crew of the 'Hinemoa' and the skins preserved. I had an opportunity of examining one of these. The pad of orange caruncles on the brow, on each side of the head, is very prominent, and as it is entirely absent in some examples, I take it to be a feature peculiar to the breeding season. There is no appearance whatever of a crest, or even an elongation of the coronal feathers. The white alar bar is very conspicuous; so is the dorsal double patch of white. The naked space around and in front of the eyes is entirely dark-blue; and the feet are flesh-coloured.

Nestling.—Covered with sooty down. Fore part of head, face, and throat, perfectly bare; the skin, which is jet-black, presenting a granulated surface, and having the appearance of kid-leather. Upper mandible brownish-black; the under mandible, except at the tip, as well as the skin at its base, in a straight line from the angle of the mouth, bluish-white, the black colouring of the skin beyond, however, being continued, in a tapering streak, to a point within the rami. Under each eye there is a minute round spot of white. Legs and feet dark-grey, the webs lighter.

In my specimens of the female the caruncles are very minute and inconspicuous. I have not yet ascertained whether this is a sexual or only a seasonal character.

The only colony of these Shags of which we have any positive knowledge is that inhabiting

* Dr. Kidder refers a Shag he brought from Kerguelen Island to *P. carunculatus*, Gmelin, of which he makes *P. cirrhatus*, Gmelin, a synonym. But he states that "during the breeding-season the bird carries an erectile crest of about a dozen small plumes upon the top of the head; tarsus and foot yellow." Is not Kidder's bird the true *P. cirrhatus* or "Tufted Shag" of Gmelin?

the White Rocks in Queen Charlotte Sound, and numbering, according to Captain Fairchild's estimate, about fifty birds. All the specimens collected by Mr. Henry Travers, notices of which have from time to time been communicated to the Society, came from this locality. And it is worth remembering that Latham, who originally described the species, states that it inhabits New Zealand as well as South America, being "found in Queen Charlotte Sound, but not in plenty."*

Unless the Government extends its protection to this species of Shag on its last known refuge—the White Rocks near the mouth of Queen Charlotte Sound—it is very certain that it will ere long be completely "wiped out." The colony has already been nearly extirpated by one of the local collectors. A few breeding pairs remain; and, if these are rigidly protected, this species will soon re-establish itself on the White Rocks, which it has inhabited ever since Cook's time, and doubtless long before! A special interest always attaches to a species inhabiting a single spot on the globe's surface; and this is one of them. Apart from the sentiment of the thing, it is one of the finest known Shags, and very distinct in character from all other members of the group. In 1892, as already mentioned, the Earl of Onslow, the then Governor of New Zealand, sent some nestlings to the Zoological Society. At Christmas, 1893, I saw the survivor of them in one of the artificial ponds at the Gardens, and made the following notes: "It is apparently a female, the colours being very dull. It has a distinct prominence in front of each eye; the bare skin on the face (at this season) is very dull red, and there is a blue patch under and surrounding the eyes; feet dull yellow or fleshy-white; alar bar narrow and indistinct, only the extremity of the coverts being white. The bird is very tame, follows its keeper when called, with a low croaking note, and diverts the public by its remarkable activity under water during feeding time, as seen through the plate-glass front of the tank when the feeding takes place."

The "White Rocks"—Long Island and Motuara—on which the only colony of these birds we know of is established, are situated in the entrance to Queen Charlotte Sound. They consist of a ridge of peaked rocks about a quarter of a mile in extent, standing high out of the water and bearing W.N.W. one mile from Cape Koamoro, with a passage between and on either side of them. The two islands lie three miles within the line of the two Capes forming the entrance, Long Island on the eastern and Motuara on the western side.

On August 1st I saw on board the 'Hinemoa' four young birds of this species brought by Captain Fairchild from the White Rocks, where he had found them breeding about a fortnight before. There were young birds almost ready to fly in some of the nests and freshly laid eggs in others, with shaglets in almost every intermediate stage of existence. He brought me three eggs.

The young birds are covered with dusky-black down, thick and short; bill brownish-black, with conspicuously white lower mandibles, and the white crosses the gular sac in a sharply defined line. They make a peculiar "cawing" sound. Captain Fairchild stated that the old birds, at other times so shy and unapproachable, wax very bold when their young are being taken from the nests, and can easily be knocked over on the wing with a three-foot stick.

P. carunculatus is the only species of Shag inhabiting this locality.

In writing of this species, Dr. Forbes says:—

One of the specimens collected during the Antarctic expeditions, and presented to the British Museum by the Admiralty, bearing the name '*P. carunculatus*, New Zealand,' is undoubtedly *P. verrucosus*. I

* In my account of *Phalacrocorax carunculatus* ('Birds of N.Z.,' vol. ii., pp. 160, 161), I have quoted Mr. Percy Seymour's remarks respecting a colony of Shags, breeding at the foot of a small cliff on Otago Peninsula, as referring to this species. But this can hardly be the case, because he states that "their feet appeared from a distance of a few yards to be reddish or brownish," whereas *P. carunculatus* has fleshy-white feet at all ages.

suspect that there is some error as to the locality, and that not improbably it has become dissociated from the other specimens collected at Kerguelen during that voyage and presented to the Museum by the Admiralty at the same time. The specimen was probably, therefore, from Kerguelen Land, and not from New Zealand.

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX COLENZOI

(AUCKLAND-ISLAND SHAG.)

Phalacrocorax colensoi, Buller, *Birds of New Zealand*, vol ii., p. 161.

Phalacrocorax rothschildi, Forbes, *Ibis*, vol. v., p. 537 (1893).

DR. H. O. FORBES, in his paper 'On the Birds inhabiting the Chatham Islands,' which appeared in the *Ibis* for October, 1893, describes, under the name of *Phalacrocorax rothschildi*, a Shag found at the Chatham Islands and in the south of New Zealand, separating it from *Phalacrocorax colensoi*, and saying: "This species is distinguished at once by the approximation of the dark plumage of the head beneath the throat, leaving a comparatively narrow white stripe between them." He also makes the possession of both the white alar bar and the white dorsal spot characteristic of his new species.

In my opinion, we have a good deal more to learn about the Shags inhabiting New Zealand and the adjacent islands; and I think perhaps Dr. Forbes was somewhat rash in characterising this as a new species without further investigation.

The type of my *Phalacrocorax colensoi** was from the Auckland Islands, but (like all the other specimens collected there by Mr. Burton at a wrong season of the year) it was in old and faded plumage, with dingy colours. Long afterwards, however, I have had an opportunity of examining a large number of skins in good plumage, collected by Mr. Henry Travers at the Auckland Islands and on Campbell Island during a cruise of the Government gunboat 'Hinemoa.' The examination of this collection satisfied me that Mr. Forbes's "characters" are of very little value. The form and width of the white stripe down the foreneck, the presence or absence of the alar bar, and the dorsal patch of white, are inconstant features, due apparently to age or season. It will probably be found, when we become

* This species was named in honour of the late Rev. W. Colenso, F.R.S.

Sir Joseph Hooker, in a letter to the Author, dated June 23rd, 1895, referring to this veteran, said: "I am always glad to see Colenso's name brought forward. I wish he could have been persuaded to treat of plants as you have of animals, but such is not his genius. Considering what his early training and duties were, I must always regard his labours, in their way, transcendental! Had he received an education that trained his mind to check the eye he would have done wonders as a botanist; as it is, I can only marvel at the results of his eye-work as a collector and his indefatigable industry, zeal, and self-denial, and I look back on my weeks of personal intercourse, and years of active correspondence with him, as a long episode of New Zealand in my life."

better acquainted with the species, that the bird is carunculated at one season of the year and not at another, for all the specimens brought by Mr. Travers (killed in May) are without caruncles on the face. They include adult birds of both sexes, but presenting very different phases of plumage. In three of them there is a slight coronal crest, the feathers being acuminate, and produced beyond the ordinary plumage of the head. In some the alar bar is very conspicuous, occupying the whole of the median wing-coverts, in others it is broken and irregular; in one of the birds it is wholly absent, whilst in another the only indications of it are a few scattered white feathers among the dark wing-coverts. Of the whole series only one presents the white dorsal spot. The white throat-stripe is very uncertain in character: in some of the specimens it widens gradually from the chin to the breast, whilst in one of them it is narrow and of even width in its whole extent; in some it is constricted in the middle; and in one of them the dark plumage of the sides of the neck almost meets above the breast, the white stripe being interrupted and broken. Out of the whole lot only one gives the wing-measurement of my type—namely, 10·5 inches. In all the others the wing, from the flexure, measures 11 inches. It will be seen, therefore, that, even in this respect, the species is variable. The fact is that this Shag, like many others, varies with age and season, and the only thing to be done, so far as I can see, is to make the characters of *Phalacrocorax colensoi* somewhat wider.

In a specimen which I have since had an opportunity of examining, the dark plumage actually meets about the fore-neck, there being only a few minute white feathers along the line of junction. There is a single lengthened coronal feather, evidently the vestige of a crest that had recently been shed. There is a broad alar bar of white, but no dorsal spot. This bird, which represents old and faded, or out-of-season, plumage, was obtained by Mr. Henry Travers on a former visit to the Auckland Islands, about the year 1890.

A year later I had an opportunity of examining two more specimens (male and female). The male bird of these is without a crest, but has a broad irregular white dorsal patch, and the white alar bar long, narrow, and distinct. The female is also crestless, and exhibits only an indication of a dorsal spot in a few white feathers. The alar bar is very irregular, being represented in the left wing by only a few scattered white feathers. In both birds the white streak on the fore-neck commences within the angle formed by the crura of the lower mandible, and increases rapidly in width downwards towards the breast. These specimens, therefore, go to confirm the conclusions to which I had arrived from an examination of the collection made by Mr. Henry Travers.

With regard, however, to another species of Shag, Mr. Forbes has, I think, been more fortunate. He is probably right in considering *Phalacrocorax imperialis*, with which I had united the Chatham Island Shag, as being confined to the Straits of Magellan, from whence the type came. I am perfectly sure that the Chatham Island bird is distinct from *Phalacrocorax carunculatus* of New Zealand, and if it cannot properly be united with *P. imperialis* it requires a distinctive name; and in providing this Mr. Forbes could not, in my opinion, have made a better selection than he did in dedicating this handsome species to our former Governor. Lord Onslow not only took an active interest in our native birds and their preservation, but he was the first to send to Europe living specimens of *Phalacrocorax carunculatus*, one of which survived for many years in the Zoological Society's Gardens at Regent's Park.

Mr. Henry Travers, who collected, at several times, a large series of skins of this species, assures me that he never found a crested example. This may have been due to the particular season in which he visited the Auckland Islands.

Mr. Youil states that he took careful note of the soft parts. Irides bright red; naked

surface of the face dull red; edges of the upper mandible towards the angle of the mouth and the base of the lower mandible orange-yellow.

An undoubted example of *P. colensoi* purchased from Mr. Youil measured: wing, 11.5 inches; tail, 5.75 inches.

Later on, I examined two fine specimens in the Colonial Museum. One of these is un-crested, a female bird, shot by Youil with five or six others (all un-crested) at the Auckland Islands in February. The other (like my two specimens) has an ample crest. It was brought (with mine) in spirits from the Auckland Islands, but when shot I could not determine. It would seem from this that the species is crested at one season and not at another. But these two specimens differ from all of mine in this respect, that the black meets round the neck for the space of an inch or more, leaving a narrow white throat-streak above it.

Captain Hutton writes to me of this species: "Found on Stewart Island, as well as on Auckland Islands." He must accordingly have received a specimen from the former locality. I procured a large collection of Shags through Mr. Markland, from Stewart Island, but no example of *P. colensoi*.

Captain Hutton further writes to me: "There are no Shags at the Snares, nor at Antipodes Island." This is a very curious fact, and difficult to account for.

Commenting on the origin of the variations ('Animals of New Zealand,' p. 291), the same writer asks: "How did they arrive? *Phalacrocorax carunculatus* has lost its crest, *P. chalconotus* and *P. traversi* have lost the white dorsal bar, and *P. ranfurlyi* has lost caruncles, crest and dorsal bar. The white alar bar was a new character acquired by *P. colensoi*, and the white dorsal bar another new character, first acquired by *P. stewarti*. It is impossible to suppose that they were caused by amphimixis, as the blending of the sperm and the ovum could not have produced characters that never existed in any of the ancestors of either parent. Nor can the white bars be attributed to the action of the environment, for it is impossible to connect the origin of white feathers on the wings and back with the weather, or with any of the surrounding objects, especially as in *P. chalconotus* the changes have been in an opposite direction; and not only have the white alar bar and dorsal bars been lost, but the whole of the under surface has also turned black."

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.]

PHALACROCORAX HUTTONI.

(STEWART-ISLAND SHAG.)

Phalacrocorax huttoni, Buller, Birds of New Zealand, vol. ii., p. 174.

Phalacrocorax stewarti, Grant, Cat. Birds, Brit. Mus., vol. xxvi., p. 331.

THE bird described by me under the above name was evidently an immature example, although, when obtained, it was in moult and changing its plumage, thus leading me to the conclusion that

it was adult. But Mr. Ogilvie Grant's suggestion ('Cat. Birds, B.M.', vol. xxvi., p. 331) that it is the young of *P. varius* is singularly unfortunate! * If the compiler of the volume had taken the trouble to refer to my description of the nestling of *P. varius* (vol. ii., p. 149), he would have seen that, from the earliest condition, the legs and feet of that species (which I have taken from the nest) are black; and this would have saved him from making so feeble a suggestion. That view, therefore, may be at once dismissed.

But of what species is it the young? In the light of subsequent information, I have no doubt that it is the beautiful crested Shag, described by Mr. Ogilvie Grant,† under the name of *P. stewarti* from specimens brought home by Baron A. von Hügel. I need hardly say how pleased I am to find that I have connected Professor Hutton's name with one of the finest members of this interesting group, because the one originally characterised (young and uncrested) was a somewhat dingy looking bird.

Through the kindness of Mr. Marklund, I have obtained a fine series of specimens (now in my collection) from Stewart Island, the true home of this species; and a still larger series which I purchased for the Tring Museum.

Mr. Youil was the first, in 1896, to draw my attention to this bird. He had seen a party of six or seven perched together on the trees over-hanging the sea at Stewart Island, and was struck by their amazing shyness. They took alarm and craned their long necks at the slightest noise and commenced flight at twice the distance of shooting range. Soon after this, I saw a party of five on a bare rock in Paterson's Inlet, their white alar bars being very conspicuous. These evinced the same shyness, taking wing long before our boat came within range. I gave them a charge of heavy shot as they passed us, but it had no visible effect.

My first specimens of this Shag were received from Marklund in midwinter in 1896; one marked "male," the other "sex unknown." I take them both to be males. The one determined measures as follows: Length, 29 inches; wing, 2 inches; tail, 6 inches; bill, along the ridge, 2.5; along edge of lower mandible, 3; tarsus, 2.75; longest toe and claw, 4.5.

The white alar bars are regular in shape and decidedly conspicuous. The dorsal patch of white is very pronounced, measuring 3 inches by 2 inches. The whole of the plumage is soft and glossy, and both birds have splendid coronal crests; there are also about half-a-dozen beautiful white filaments—from half-inch to an inch in length—above and behind each eye. Bill blackish brown, changing to dark horn-colour at the tip of both mandibles. Legs fleshy-white, shaded with brown along the outer edge of the foot, also towards the claws and along

* Mr. Ogilvie Grant in the 'Catalogue' (vol. xxvi., p. 331) classes *P. huttoni* among the doubtful species; and he adds: "The type, which was obtained near Dunedin, in January, 1876, and is preserved in the Otago Museum, appears from the description to be an immature specimen of *P. varius*." Perhaps Mr. Ogilvie Grant will indicate some other species of Shag in which the feet change from "orange-yellow" in the young to black in the adult!

† The species is thus distinguished in the 'Catalogue' of the British Museum: "*Adult in breeding plumage.* Much like *P. onslowi* in plumage, but the neck is somewhat greener; a well-developed crest, white alar bar, and dorsal patch are present, but there is *no trace of nasal wattles*, the lores being thinly feathered; behind and above the eye a thin patch of white hair-like feathers. Tail composed of twelve feathers. Eyelid light blue; naked skin on lores and sides of face very dark blue; a row of small red warts between the culmen and the eye; naked skin at base of lower mandible and gular pouch arterial red. Total length about 29 inches; culmen from feathers on forehead to tip 2.4; depth of cutting edge, 0.35; wing, 11.6-11.7; tail, 5.1-5.3; tarsus, 2.8; innermost toe and claw, 4.3. Although the bill is nearly as long as that of *P. carunculatus*, it is not nearly so stout.

"*Adult in non-breeding plumage.*—Similar to the above, but without a crest.

"*Immature.*—Very similar to the immature of *P. onslowi*. In a bird apparently changing to the adult plumage the white alar bar is strongly developed.

Hab.—"Stewart Island and South Island of New Zealand."

the outer edge of the interdigital web. The undetermined bird has the right foot shot-torn—the result of an old wound.

This beautiful Shag inhabits the Southern portion of New Zealand. A few specimens have been obtained on the sea-shore near Port Chalmers, and some of these are in the Otago Museum.* But the collector must not expect to meet with the species till he reaches Foveaux Strait; and even there it is very scarce. Its true home seems to be the estuaries and inlets of the sea that diversify the coast of Stewart Island. It was there I first met with it, and from that locality I afterwards obtained through Mr. Marklund some twenty fine specimens in various phases of plumage.

It associates closely with *Plalacrocorax chalconotus*, occupies the same breeding colonies, and I suspect, often crosses with that species, for my collection contains several specimens in what looks like an intermediate plumage; so much so that for a time I had a strong suspicion that these birds would prove to belong to one and the same species. I am not absolutely clear about it yet, although my collector is very certain that they are distinct.

The specimens of this species in my collection, and of *P. chalconotus*, as well as the birds in what appears to be transitional plumage, are all beautifully crested. Both male and female are crested in this adult state. The un-crested birds are, I assume, birds of the second year. An example of *P. chalconotus* which I sent to Canon Tristram had a very imperfect crest.

I took the following notes from a comparatively fresh specimen: Along the forehead, from the base of the upper mandible, a row of minute arterial red papillæ; irides, light brown; bare orbits, bright cobalt; bare membrane on face dark blue, mixed with red towards the rami of the lower jaw; gular sac arterial red; bill greyish slate colour.

I received from Stewart Island in the depth of winter Shags with ample crests, from which I inferred that they were crested all the year round; but, writing to me on September 9th, Marklund says: "I notice the Shags are losing their crests; but I have not been able to get out to their 'rookery' yet, on account of the heavy sea which has been running for the last fourteen days." On January 13th he writes: "The Shags have not yet regained their crests."

I have before me, as I write, eight specimens (all from Stewart Island) from which I take the following notes:—

- (1) Adult (male?). Has a plentiful crest and a large and conspicuous alar bar of white; no dorsal spot.
- (2) Adult male. Has a magnificent crest and an abnormal spread of white on the wings, with white overlapping feathers from the upper breast at the humeral flexure; very large dorsal patch of white, being three inches across and one inch and a-half deep.
- (3) Adult female. Has a splendid crest and great spread of white on the wings; broad patch of white on the back.
- (4) Adult (♀?). Handsomely crested; large alar bar; extensive dorsal patch, almost covering middle of the back.
- (5) Adult (♀). Fairly well crested; above and beyond each eye some fine white filaments, about half an inch in length; conspicuous alar bar; extensive dorsal patch.
- (6) Adult (♀?). Fairly well crested; distinct alar bar, but no dorsal patch.
- (7) Adult (♂). Well crested; broad alar bar, and broad rectangular dorsal patch.
- (8) Adult (♂). Not crested; otherwise similar to No. 7.

* As far back as 1863, I observed this Shag on the rocks near Port Chalmers, although not near enough to determine its characters. But I recorded the fact at the time; and on looking over the old "type Collection" in the Colonial Museum, quite recently, I came upon a skin of the bird from Otago bearing the following label in Captain Hutton's handwriting: "Rock Shag of Buller."

PHALACROCORAX CHALCONOTUS.

(GRAY'S SHAG.)

Phalacrocorax chalconotus (Gray), Buller, *Birds of New Zealand*, vol. ii., p. 162.

NOTWITHSTANDING the argument I formerly put forward in favour of the recognition of *Phalacrocorax glaucus*, Homb. and Jacq., as a distinct species (vol. ii., p. 163), no precisely similar examples have come under my notice, and I am forced to the conclusion that, although my specimens were to all appearance adult birds, they represented in reality young states of *P. chalconotus*.

On July 10th (1896), I received from Stewart Island a beautiful pair—both handsomely crested, but particularly the male.

Naked space on face entirely papillate and of a purplish-black colour, with a line of minute red papillæ along the forehead on each side of the head; orbital skin forming a ring of bright cobalt, narrow and mixed with black above the eye, broad and bright below; irides, pale brown; angles of mouth and the whole of the bare skin at the base of the lower mandible and on the throat (separated by a narrow gular strip of feathers), bright orange-red; culmen, dark grey; sides of upper and the whole of the lower mandible, light grey; legs and feet fleshy-white, with a pinkish tinge; soles, under surface of toes and claws, black. No alar bar or dorsal patch; plumage uniform bronzy-black with oil-green reflections.

Some of the black-plumaged specimens present, as it seems to me, vestiges of an earlier dark brown plumage. The bird known to us as *P. glaucus* is, therefore, without doubt, the same Shag in a more immature condition; in other words, the first year's plumage of *P. chalconotus*.

I have examined the skin of a Shag (from Stewart Island) in the possession of a Wellington collector. It clearly shows the transition from the so-called *P. glaucus* to *P. chalconotus*. It is not crested; the lores are slightly feathered; and the old dull-brown plumage is being replaced by the glossy livery characteristic of this bird.

I have now before me thirteen specimens, all received from Mr. Marklund. They are all crested but two; the sexes alike, except that the male has the bill more robust. Some of them have white filaments behind the eyes, but none of them have the dorsal patch of white.

In one of these specimens I notice that the quills are moulting out, the old ones being of a uniform colour. This again seems to confirm the view that *P. glaucus* is only this Shag in its first plumage. This (as well as the other specimens) has the skin at the base of the lower mandible and the unfeathered part of the gular sac of a bright brick-red colour. One of them has short white filamentous plumes above and beyond the eyes.

Of *P. chalconotus* there are four specimens in the British Museum. They have neither alar bars nor dorsal spots of white—not even a trace. One of them is very bronzy and shining, the others are dull. The bronzy one has a small, but well-developed occipital crest. The dullest of them is very much like the so-called *P. glaucus*, with vinous-brown throat and very little gloss on the plumage. The two others are passing from the adolescent plumage into that of the adult, the new bronze-green feathers in the mantle contrasting strongly with the faded brown ones of the old plumage. These last three have no crest whatever.

I am of opinion that the successive changes are as follows:—

- (1) Nestling: covered with thick down of a uniform blackish-brown colour.
- (2) First season's plumage: blackish-brown, with black legs (*i.e.*, the *P. glaucus* of my second edition).
- (3) Second year: changes to metallic black; ample crest; but no alar bar, and no dorsal patch.

Several of the black forms sent me by Marklund presented scattered white feathers on the upper abdomen and sides of the body, whilst one of them had, besides numerous white feathers on the under parts, a pure white patch on the left side. One of these parti-coloured forms I sent to the Cambridge University Museum. This may be due to intercrossing; but, thinking it might indicate a change of plumage due to immaturity, I wrote to my collector on this point, and he replied as follows:—

"The Black Shags are more plentiful than the Black-and-White ones. The two kinds seem to live together, and their habits, mode of flight, &c., are just the same. And still they must be two distinct species, because there are young ones, about twelve months old, of both kinds; and if one sees a pair together, it will either be two Black-and-White or two Black ones. Those in good plumage are rather scarce and difficult to get, especially the Black-and-White, which are always very shy and wary. I may mention that the colour of their eyes and of the soft parts around the eyes, also at the root of the bill, is just the same in both birds. Their eyes are peculiar—quite unlike those of any other Shag; rather large and of a light-brown colour, and the pupil just a tiny black spot. The Black-and-White birds have not regained their crests as yet, and their plumage is very dull, but as the young are now coming out they must improve shortly. The two kinds, of which I have sent you specimens, never build on trees, but outside on the rocks, and there they live in perfect harmony, nesting right alongside of one another. But, after careful watching, I am certain they do not intermix, and I am persuaded they each constitute a species by itself."

Writing again on February 6th, he says:—"I am forced to believe that they represent two distinct species, for these reasons:—

"1st. They build separate nests, although at the same rookery; and on dissecting mature specimens of both kinds I have procured eggs—the eggs of both Shags being quite similar in size and appearance.

"2nd. I have shot young birds of both kinds—the young of the Black Shag showing a slaty-black colour. Part of this it retains in the second year of its life, not getting its full plumage before the third year. The Black-and-White kind do not show the white spots on the wings and back before the second summer, and then only imperfectly; and the greenish-blue gloss does not reach perfection before the third winter." [In another letter he states, what is really very important, that the young of the latter species are pied from the nest.] "The mottled appearance of the skin in your possession is, I suggest, due to a freak of nature rather than indicating a transition from one plumage to another."

I ought to mention, also, that, in one of his letters, Marklund states that in the Black Shag the bare skin towards the rami of the lower jaw is all red instead of being dark blue, as in the pied bird.

Three or four of the specimens received from Marklund in the early part of September are crestless—both the black-and-white and blue-black form. It is evident, therefore, that this is a seasonal character. It is not a sexual character, because I have both male and female crested, and male and female uncrested, of both kinds.

The species is thus distinguished in the 'British Museum Catalogue':—

Adult in breeding plumage.—Very similar to the adult of *P. graculus* (of Western Europe), but the bill is somewhat stouter and more hooked at the extremity; the feathers of the upper back and scapulars, bronze-

green, edged with *pale shining brass-green*, and the head, neck, lower back, rump, and upper tail-coverts glossed with darker and more bluish-green. Crest nearly 2 inches long. Tail composed of twelve feathers; the basal portion of the shafts, *white*. 'Bare space encircling the eye, orange; bill, greyish brown; legs and feet, dull orange-yellow' (Buller). Total length about 28 inches; culmen, 2·3; wing, 11·2; tail, 5·6; tarsus, 2·5.

Immature, probably in the second autumn plumage.—Head, neck, and underparts, dull sooty brown, with a dull oil-green gloss; upper back glossed with dull oil-green, most of the feathers with indistinct darker margins, being in this respect unlike those of the adult; wings and scapulars, brownish, with a slight gloss; lower back, rump, and upper tail-coverts glossed with dark bluish-green, as in the adult.

Hab.—New Zealand coasts.

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX PUNCTATUS.

(SPOTTED SHAG.)

Phalacrocorax punctatus (Sparrm.), Buller, *Birds of New Zealand*, vol. ii., p. 164.

MR. H. H. TRAVERS states, in one of his published notes, that the female of *Phalacrocorax punctatus* is never crested; but this is a mistake. Both sexes are crested during the breeding season, although I think it is probable that the female does not assume the crest till the second year. Mr. W. Smyth has several female birds in full crest, and he assures me that he examined them very carefully. In the female the colours are duller than in the male, the crests appear to be smaller, and the white neck-stripes are not so broad or conspicuous as in the male; otherwise the sexes are alike.

A young bird which I obtained at Stewart Island and presented to the Cambridge University Museum furnished the following notes:—Upper surface glossy brownish black, the small feathers composing the mantle with a terminal spot of black; scapulars paler; back and thighs black with a bluish or greenish gloss, according to the light; upper surface of wings greyish brown, the small coverts having obsolete terminal spots; quills and tail-feathers brownish black, the latter having the shafts whitish towards the base.

Progress towards maturity.—The white streak on the neck does not seem to appear till the second year, whilst the bird is still uncrested. The example mentioned above, being in the younger plumage, was without the white streak.

There is one phase of plumage occasionally met with which I can only ascribe to modified albinism. General plumage pale brownish-grey, darker on the upper surface, with obscure tips of black on the scapulars and wing-coverts; back, rump, and thighs bluish-black, with a slight gloss.

Writing to me from Auckland, in August, 1895, Captain Mair says: "I have been greatly struck with the numbers of Shags of this species nesting in this neighbourhood. There are three rocks between the Thames and Coromandel frequented by them. Passing up lately through thirty-five miles of coast, I did not see a single White-breasted Shag; but

the three rocks I have mentioned had three or four hundred Crested Shags on each of them. I got up to within twenty-five yards of about a hundred birds. The dark colour of the face and the beautiful crest on the adult birds were very conspicuous."

An albino of this species received by me from Canterbury has the whole of the under-parts pure white; entire upper-surface very pale brown, the centre of each feather darker; varied on the hind-neck and on the right shoulder with grey, the feathers on the latter having darker margins; back, rump, and thighs, also wings and tail, very pale-brown, varied more or less with darker brown. On the left side the white on the neck and breast has an ashy shade, the broad white stripe from the back of the eye down the side of the neck being very conspicuous.

I am also able to add to this list a pure albino obtained, as I am informed, at Kaikoura. Being without crests, it is evidently a bird of the first year; but it is in excellent plumage, except that the tips of the tail-feathers are abraded by wear.

Mr. Kirk states, on the authority of Mr. J. C. McLean,* that a colony of fifteen or sixteen has for many years been established on a reef inside Cape Kidnappers. On the occasion of Mr. McLean's visit (in December, 1885) there were five nests placed at equal distances apart along a ledge which runs on the side of the rock about three feet from the top. They were composed of seaweed; one of them contained two eggs, and each of three others contained two young birds covered with black down, the fifth being empty.

Mr. J. C. McLean writes himself ('Ibis,' 1889, p. 301):

The nests are repaired every year for each laying, the old nests being used as a foundation. When recently finished, the different coloured seaweeds used give the nests a very pretty appearance. . . . They are substantially built of twigs and coarse seaweed, and are neatly repaired and lined with small twigs, fibrous roots, tufts of grass and fine seaweeds, with an occasional wing or tail feather of the parent bird. The egg is elliptical in shape, and, when freshly laid, is of a pale bluish-green clouded with chalky-white. It measures in length 2·2 inches, and in breadth 1·5.

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX FEATHERSTONI.

(CHATHAM-ISLAND SHAG.)

Phalacrocorax featherstoni, Buller, Birds of New Zealand, vol. ii., p. 166.

CAPTAIN HOOD, of the Chatham Islands, informs me that this fine species of Shag is nearly extinct. He speaks with the authority of twenty years' residence on those islands. According to his account, like *Phalacrocorax carunculatus* in New Zealand, this bird has always been restricted to one or two localities; and of late years, like the latter species, it has been much harried by natural history collectors.

* *Trans. N. Z. Inst.*, vol. xx., p. 30.

Dr. Finsch has thus described the soft parts: "Iris, pale green; bill, dark brown; naked skin round eye and on throat, purplish-grey (?); legs and feet, orange-yellow."

In the Otago Museum there is a specimen presenting a splendid incurved frontal crest, as well as an ample occipital crest, of metallic black feathers.

Dr. Forbes states that the eggs of this species are quite similar to those of the allied forms, varying from ellipso-ovoid to cylindrical ovate in shape, and differing slightly in size, those he collected having a range of from 2.25×1.35 in. to 2.40×1.50 .

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX ONSLOWI.

(ONSLow'S SHAG.)

Phalacrocorax imperialis, King; Buller, *Birds of New Zealand*, vol. ii., p. 153.

Phalacrocorax onslowi, Forbes, *Ibis*, 1893, p. 533.

IN my account of this species (vol. ii., p. 154), I said: "After a careful investigation of the subject, and a comparison of all the specimens within my reach, I have decided to treat the crested bird from the Chatham Islands as the true *Phalacrocorax imperialis*, and the uncrested New Zealand form as Gmelin's *P. carunculatus*. It would perhaps be safer to give to this form a new distinctive title; but I am unwilling to add another name to the already somewhat tangled synonymy of this species and its allies. I am aware that it is 'a long cry' from the Straits of Magellan to the Chatham Islands; but experience teaches us that it is impossible to lay down any strict geographical rules of distribution for birds of this class."

Dr. H. O. Forbes afterwards ('*Ibis*,' 1893, p. 533) took the "safer" course I had indicated, and described the Chatham-Island bird as a new species, dedicating it to the Earl of Onslow, a former New Zealand Governor; and I have great pleasure in following him in this, for no one appreciates more than I do the active steps taken by his Lordship, during his term of office, for the protection of the New Zealand avifauna and the conservation of the native flora.

I notice that the University of Cambridge, in its Museum report for 1902, adopting my nomenclature, has distinguished this bird as *Phalacrocorax imperialis*, but it is enrolled in Sharpe's 'Handlist' as *Phalacrocorax onslowi*; so we may now consider the matter definitely settled.*

* Crested Shag from Chatham Islands (collected by Mr. Henry Travers), now in Colonial Museum. *Phalacrocorax onslowi*, Forbes.

Head, neck, back, and rump deep metallic blue-black; scapulars and mantle with glossy green reflections; alar bar very distinct; dorsal spots present, but inconspicuous. Total length (skin) 27.5; wing, 10.75; tail, 5; bill, along culmen, 2.25; along edge lower mandible, 3; tarsus 2.25; longest toe and claw 4.25.

According to Travers, this bird was a female. It was taken at Pitt Island on August 21st, 1871, and is well crested. (See my figure in *Trans. N.Z. Inst.*, vol. ix., pl. xiv., fig. 1.)

At a meeting of the Wellington Philosophical Society (in September, 1894), I exhibited a very beautiful example of this species. It was in brilliant plumage, and, on being handled, the feathers of the neck were soft and as yielding to the touch as the finest silk-velvet. It was a male bird in full breeding plumage, and had a superb coronal crest, the feathers composing which were from one to three inches in length, of narrow, even breadth, and of the same brilliant metallic blue as the surrounding plumage. Dr. Forbes, in diagnosing the characters of this species, includes "an alar bar and doubtfully a dorsal spot of white, as it is absent in the specimens, though mature and crested, described and figured by Sir W. Buller." The example under notice, although apparently in the most matured plumage, the neck being adorned with white hair-like filaments an inch long and the alar bar being very conspicuous, did not present the slightest indication of the dorsal spot of white.

In the British Museum collection there are two specimens, both with very bright plumage; only slightly crested, but with very conspicuous orange-yellow nasal caruncles. Both have broad white alar bars; one has large dorsal spots, the other only vestiges.

It may be safely assumed, therefore, that this is either a seasonal character or is determined by the age of the bird.

Mr. J. W. Pepper, who has collected largely in the Chatham Islands, writing to me from Pitt Island (January 16th, 1899) says:—"You sent me a sketch of the Black-and-White Shag's head. The colour of the face is an orange-yellow, and the bare space round the eye a pretty blue—I should say the colour of washing blue; and now you have it as correctly as I can judge colours."

Mr. Travers, however, records that "the fleshy parts about the eyes and mouth are orange-red."

I have made a careful examination of a pair of specimens in my collection, and compared them with my large series of *P. huttoni*. I have now before me two specimens of the Chatham-Island Shag, which Dr. Forbes distinguished from *P. imperialis* under the name of *P. onslowi*. I find that, although the plumage of this bird is very similar to that of the Stewart-Island bird, it differs in having a cushion (if I may so term it) of red caruncles on each side of the forehead. In *P. carunculatus*, from Queen Charlotte Sound, these caruncles are orange-coloured. The male bird has a much broader and more conspicuous white alar-bar than the female, and it exhibits a broad white dorsal spot, which is entirely absent in the other specimen. I may add that the latter has some beautiful white filaments at the back of each eye.

There can be no doubt, I think, that Dr. Forbes' *P. rothschildi* ('Ibis,' 1893, pp. 537-9) is only another form of *P. colensoi*, "the approximation of the dark plumage of the head beneath the throat" being apparently the only distinguishing feature, and this is quite a variable character. Indeed, as a distinct species, it has now been dropped by common consent.

Mr. Henry Travers showed me an egg he had received from the Chatham Islands, marked "Pateketeke," probably belonging to this species. It is ovoido-elliptical in shape, of a pale green colour, with slight chalky incrustations, and measures 2·3 by 1·5 inches. The collector refers it to a "white-breasted Shag."

PHALACROCORAX CAMPBELLI.

(CAMPBELL-ISLAND SHAG.)

Phalacrocorax nycthemerus, Cab.; Buller, *Birds of New Zealand*, vol. ii., p. 167.

Phalacrocorax campbelli, Filhol, *Mem. Pass. Venus*, iii., pt. ii., p. 55 (1885).

I WAS allowed to examine a large series of Shags collected by Mr. Henry Travers, and I have established the fact that Youil's Crested Shag (of which I have three or four specimens) is found both at the Auckland Islands and at Campbell Island. It is quite distinct from *P. colensoi*, which never has the central coronal crest, and I take it to be *P. campbelli* of Dr. Filhol. Like *P. brevirostris* and other members of the group, this species evidently passes through several phases of plumage in its progress towards maturity, and takes probably three years to attain the full adult livery. I have already mentioned elsewhere the variable character of the fore-neck both in *P. colensoi* and in this species, the black from the sides of the neck approximating more or less in the middle, and sometimes coalescing. In the two birds in the Colonial Museum already referred to (both of them well crested) the black is continuous in the middle of the neck for the space of an inch or more. In some of Mr. Travers's specimens (all well crested) it is carried a stage further and, progressively, till there is only a white stripe left on the throat, and all the fore-neck is black. I measured the wings of all his specimens, and they were uniformly an inch shorter (from the flexure to the tip) than in *P. colensoi*. Moreover, the latter species, which Mr. Travers collected at the Auckland Islands in February, and again in May, never seems to possess the handsome long coronal crest of the other. In some specimens there is certainly a lengthening of the feathers of the vertex, forming an incipient crest; but this is of a different character, presenting the appearance of two occipito-lateral crests, instead of being strictly coronal. Mr. Henry Travers was unable to give me any information about the colours of the irides and the soft parts in the fresh bird, which was unfortunate.

After examining, at a later period, a large series of specimens collected by Mr. Bethune I have been confirmed in this identification. The young of this species has the throat and upper part of fore-neck, as well as the under parts of the body, white; there is a broad band of dusky black crossing the lower fore-neck, and the bird is crestless. The second year's plumage is the same, except that the brown is replaced by the burnished blue-black plumage, whilst the head is ornamented with a fine crest of narrow plumes. In the third year the white on the fore-neck extends, leaving only a narrow band, an inch wide, across the lower fore-neck, or sometimes the white streak is continuous, but narrowed or constricted, on that part of the neck. In the fourth year the bird assumes its full plumage, the whole of the fore-neck becoming white.

There is a young bird of this species in the Wanganui Museum, brought by Reischek from Campbell Island. Bethune's specimens are principally from the same locality; but two of them are marked as from Auckland Island; and all the adults are well crested.

The two sexes are crested, and both appear to have exactly the same plumage in the adult state. The specimens in my collection are all from Campbell Island; but the species exists on the Auckland Islands as well, for Captain Hutton, writing to me on March 18th, 1901, says: "Did I tell you that we obtained *P. campbelli* on the Auckland Islands?"

They are not so common there as *P. colensoi*; but there are intermediate forms. The head and neck of one of these I stuffed for Lord Ranfurly."

In the Otago Museum there is an exceptionally fine specimen of *P. campbelli*, with a conspicuous vertical crest of shining black feathers.

Young.—In a young bird which I presented to the Cambridge Museum the white on the fore-neck is reduced to a narrow, diamond-shaped mark about two inches in length, and the dark plumage is continued below for three inches or more.

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX TRAVERSI.
(MACQUARIE-ISLAND SHAG.)

Phalacrocorax traversi, Rothschild, Bull. B.O.C., 1898, viii., p. 21.

I HAVE not seen this species, but it is thus characterised by Mr. Rothschild from a single specimen obtained by Mr. Henry Travers at Macquarie Island:—

Adult.—No crest; crown, back of neck, and upper parts greenish steel-blue, much duller than in *P. onslowi*, and not showing a dorsal white patch; white alar bar, broad and well defined; tail feathers, black, and twelve in number; throat and all under surface, white; middle under tail-coverts, black; feet, reddish-orange in skin. Nasal caruncles well developed.

This species is exactly intermediate between *Phalacrocorax atriceps* and *P. verrucosus* in the disposal of the black and white on the sides of the head and neck. In *P. atriceps* the ear is situated in the middle of the white area, while in *P. verrucosus* the ear is in the middle of the black area. In the new species the ear is exactly on the border, half in the white and half in the black area. "Wing, 305 to 310; tail, 145; culmen, 65; tarsus, 65; outer toe and claw, 110 mm. *Hab.*, Macquarie Islands."

PHALACROCORAX RANFURLYI.
(RANFURLY'S SHAG.)

Phalacrocorax ranfurlyi, Ogilvie Grant, Bull. B.O.C., vol. xi., No. lxxx., p. 66, 1901.

THE Earl of Ranfurly, the late Governor of New Zealand, like one of his predecessors in office, the Earl of Onslow, made a point of visiting every part of the colony over which he ruled, however remote or apparently inaccessible. As Lord Onslow had interested himself in getting island-sanctuaries proclaimed and set apart by the local Government for the conservation and perpetuation of the vanishing forms of bird-life, and in collecting living examples for the Zoological Society, so, in like manner, Lord Ranfurly exerted himself to

procure a good representative collection of specimens for the British Museum. In this he was ably assisted by his private secretary, Major Alexander, C.M.G., and by his A.D.C., the Hon. Charles Hill-Trevor. The large collections which His Excellency was able to forward, from time to time, to the National Collection, were found to contain a new species of Cormorant from the Bounty Islands, which has, very appropriately, been dedicated to him by name. It is thus diagnosed by Mr. Grant (*l.c.*):—

Adult male.—Mostly nearly allied to *P. stewarti*, but at once distinguished by the absence of the wide white band across the rump (only suggested by one white feather on each side) and by the very different colour of the soft naked skin on the face. Iris, pale brown; naked skin round the eye and gular pouch, light orange; legs and feet, flesh-colour. Total length, 27·0 inches; culmen, from feathers on forehead to tip 2·4, depth to cutting-edge, 0·4; wing, 11·2; tail, 5·3; tarsus, 2·6; outermost toe and claw, 4·4.

Hab.—Bounty Islands, New Zealand, January 15th, 1901.

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX SULCIROSTRIS.

(BLACK SHAG.)

Phalacrocorax sulcirostris, Brandt, Bull., Acad. St. Petersburg, iii., p. 56 (1837).

I HAD the pleasure of adding this species to our list of indigenous New Zealand birds, on the authority of a skin received by me from Mr. A. T. Pycroft, of Opuā, Bay of Islands.* It is the same bird as that inhabiting Australia, and named *Phalacrocorax sulcirostris* in Gould's folio edition, although subsequently, in his 'Handbook of the Birds of Australia,' he adopted Bonaparte's name of *G. stictocephalus*. The species was included in Mr. G. R. Gray's 'List of New Zealand Birds,' of 1862, on the authority of specimens said to have come from New Zealand, but, not having been met with again, it had dropped out of our list as of doubtful origin, the last reference to it being in Captain Hutton's Manual of 1872, with this note: "I have seen no specimens." It is satisfactory, therefore, to be able to reinstate it on indubitable evidence. Accompanying the specimen, I had a letter from Mr. A. T. Pycroft, from which I extract the following:—

"I am sending you by parcels post a skin of a small Black Shag which was shot at the mouth of the Waitangi River in July last. I have sent the Auckland Museum two skins similar to the one which I am sending to you. Mr. Cheeseman favours the idea that this bird is a distinct species from the White-throated Shag (*Phalacrocorax brevirostris*). From the information which I have collected myself I should think it was a distinct bird; but I should feel satisfied if you would kindly take the trouble to examine the skin and tell me if it is so or not. I cannot, unfortunately, tell you if it was a male or female. Seven of these birds were killed at one shot at Waitangi, and there were fully one hundred of them

* *Trans. N.Z. Inst.*, vol. xxx., p. 196.

in a flock. They were all black, and I can give you indisputable evidence to that effect. Some would remain on the surface while the remainder were fishing. It is a shy bird, and I have always had trouble to get within range. However, that time we surprised them, and were within about thirty yards of them. During the same day, at the Haumai Creek, I shot a White-throated Shag. This bird, compared with the other varieties here, is rare. The small Black Shag appears in numbers in the winter, but I have not seen it later than September. I know nothing about their breeding-places or habits. It seems strange to me that, if it is a variety of *P. brevirostris*, I have never seen any of them with any sign of white. I should think that if it was a variety, I should have seen White-throated Shags amongst them."

I afterwards received, through the same kind services, several more specimens of this Shag of both sexes.

Mr. Pycroft writes later on: "This bird is common in the winter, but is seldom seen in the summer. At the present time—August—they are very numerous, and must consume a great quantity of fish. They seem to have a weakness for the young mullet. I secured eight of these birds at one shot, when a flock of about sixty were fishing in front of the Opuia railway station. I believe they breed inland on the banks of the fresh-water rivers, but I have obtained no eggs."

Mr. Gould writes: "This Shag is found in most of the southern parts of the Australian Continent, and appears to affect the rivers and lagoons of the interior rather than the sea-coast; at least, such was the result of my observations. I found it nowhere more abundant than on the Rivers Mokai, Peel, and Namoi. Its habits did not appear to differ from those of the other members of the family: it was usually seen perched on the branches of the eucalypti overhanging the water, and on the spars and snags of the fallen trees which protruded above its surface, in small companies of from five to twenty in number. Its food consists of fish, frogs, newts, &c."

Although as yet only met with locally in the far north of New Zealand, this species enjoys a wide range. It is met with on the coasts of Australia, also in Norfolk Island and New Caledonia, and away north to New Guinea, the Moluccas, Java, and South Borneo.

ORDER PELECANIFORMES.]

[FAMILY PHALACROCORACIDÆ.

PHALACROCORAX BREVIROSTRIS.

(WHITE-THROATED SHAG.)

Phalacrocorax brevirostris, Gould; **Buller, Birds of New Zealand**, vol. ii., p. 168.

THE White-throated Shag is, as is well known, habitually shy and wary; but on the Buller River I met with it in a new character. Those who have travelled by the coach road through the Buller Gorge will perhaps remember a picturesque spot just above the junction of the Motupiko river with the Buller, from which a beautiful view of the latter, east and west, presents itself. On a jutting point of shingle bank, just below the road, one of these Shags was resting when we arrived, and there he remained, in spite of all our efforts to rouse him into action.

It is a curious circumstance that, although I have twice visited the West Coast and been through all the Sounds, I never saw on the coast there an example of the White-throated Shag, so common in all other parts of the country. In Preservation Inlet I saw, on two occasions, the closely allied *Phalacrocorax melanoleucus*, and found this species breeding on Stewart Island.

It is plentiful in the last-named locality but remarkably shy, it being almost impossible to get within gun-range, except by stratagem.

From an extensive series of specimens in my own collection, I take the progressive changes towards maturity to be as follows:—First year: uniform dull black, stained more or less with brown. Second year: satiny black, sometimes with indications of white on the throat. Third year: adult plumage, with white throat.

In some examples the white of the throat extends downwards, covering a part or even the whole of the foreneck and crop, and sometimes even the whole of the under surface. I can only account for this on the theory of albinism. The young of this species is entirely brownish black; and the adult, of both sexes, has a white throat. But the young birds are not very numerous. For example: I counted on one occasion twenty-five of these birds in one flock perched on the branches of a fallen tree that was lying half submerged in the water. Three of these were entirely dark birds; the other twenty-two had white throats. From first to last I have seen, I should think, thousands of these Shags, and it is a rare occurrence to find the white extended downwards and appearing on the under surface. It has been suggested that these pied birds are hybrids between *Phalacrocorax brevirostris* and *P. melanoleucus*; but the latter species is extremely rare in New Zealand, and especially so in the North Island.*

I have received from Otago a very curious variety of this Shag. The plumage of the upper surface is normal; patch on throat much restricted in extent and creamy-white; middle of fore-neck, breast, and under-parts to the vent, greyish-white and brown intermixed, this effect being produced by each feather having a brown centre and greyish-white filaments.

In my opinion, the bird characterised by Dr. Sharpe as a distinct species, under the name of *Phalacrocorax finschi* ('App. Voy. Ereb. & Terr.', p. 37) is, without doubt, a partial albino of the common form.

This is, no doubt, the species referred to in the following paragraph which appeared in 'The Hot Lakes Chronicle' (March, 1903):—

A gentleman, while fishing at the Utuhina on Thursday last, had a curious experience, and one which was disastrous to his rod and tackle. When throwing his minnow into a deep pool, a Shag in full flight suddenly came round a bend of the river and was caught in mid-air by the hooks attached to the minnow. The bird was going at such a speed that the rod was dragged from the angler's hands, and the Shag got away with the minnow and thirty yards of the line, leaving the rod in some of the adjacent bushes.

* After describing a series of specimens with more or less white and whitish-brown on the under parts, Mr. Ogilvie Grant ('Cat. Birds, B. M.', xxvi., p. 401) continues: "The above states of plumage I believe to be those which are normally gone through by *P. brevirostris*, but there are a number of differently marked forms, in both adult and immature plumage, which appear to be abnormal. One example in the British Museum, as already described by Buller, has the under parts nearly pure white, only a few of the feathers being partially or wholly black; a second has the black and white feathers of the underparts mixed in equal proportions; a third has only the chest feathers mixed with white, while in a fourth the plumage is normal, but there are a few white feathers on the lower part of the abdomen. It is quite clear that these variations in plumage are not due to season, sex, or age, and they may be accounted for in two ways—partial albinism, or possibly by interbreeding with stray specimens of the Australian *P. melanoleucus*."

PHALACROCORAX MELANOLEUCUS.

(FRILLED SHAG.)

Phalacrocorax melanoleucus, Vieillot; **Buller, Birds of New Zealand, vol. ii., p. 173.**

IN the month of October, 1898, I received from my son—who had shot it in the Papaitonga Lake—a small Shag which is undoubtedly referable to the above species. It possesses a conspicuous frontal crest, composed of very narrow feathers of a maximum length of 1 in. There is also an elongation of the feathers of the occiput, standing erect like a short mane, and the white feathers of the face and throat are produced so as to form a sort of irregular frill. The whole of the under-parts, with the exception of the under tail-coverts, which, like the upper surface, are black, are of the purest white, with a glossy surface; but on one side of the body there is an indistinct patch of black, showing that this was the earlier plumage. The bill is brownish-black on the ridge, the cutting-edges of both mandibles and the unguis being bright yellow; sides of lower mandible and angles of the mouth yellowish-green, changing to dull yellow on the eyelids; palate and throat pale bluish-green; inside of both mandibles bright yellow.* The feet have a rough surface, having the appearance of dull-black velvet. It proved on dissection to be a female, and it gave the following measurements: Approximate length, 24 in.; wing from flexure, 9.25 in.; tail, 6.5 in.; bill, along the ridge, 2 in., along the edge of lower mandible, 2.5 in.; tarsus, 1.5 in.; longest toe and claw, 2.5 in. The bird had been frequenting the lake for two or three years, disappearing at intervals, but it was so extremely shy that it was almost impossible to get a shot at it, except by stratagem.

This form is extremely rare in the North Island. I remember, when crossing the Otaki River on horseback, some five and thirty years ago, seeing one perched on a boulder in the shallow water. At a distance of some 40 yards I could plainly distinguish the frontal crest, which the bird erected the moment it became alarmed by my presence.

I found this species breeding in Patterson's Inlet, Stewart Island, in the same "Shaggery" as *P. varius*. I shot two specimens (male and female) and found that they were both slightly crested. They gave the following measurements:—

Male.—Extreme length, 24.5 in.; extent of wings, 35.5 in.; wing from flexure, 9.5 in.; tail, 6.5 in.

Female.—Extreme length, 24 in.; extent of wings, 35 in.; wing from flexure, 9 in.; tail, 6.25 in.

A pair of young birds, in dark plumage, afterwards received from Marklund, gave practically the same measurements as the above, although the female was slightly smaller than the other.

Adult.—Culmen, black to the tip; sides of upper mandible and outer portion of lower mandible, clear yellow, changing to greenish-yellow towards the base; bare skin between the crura and at the base of the lower mandible, the lores, and a narrow bare space around the eyes, of the same colour; naked orbits, brighter yellow; irides, dark brown; feet, black. Approximate length, 24 in.; wing from flexure, 9.25; tail, 6.5; bill, along the ridge, 1.25, along the edge of lower mandible, 2; tarsus, 1.5; longest toe and claw, 2.5.

* Marklund sends me the following note:—"The young has brown eyes. The adult has brown eyes, with a greyish tint on the outer rim. Top of upper mandible, black; sides of the upper and the whole of the lower mandible, yellow."

Young.—Entire plumage dull black, the breast strongly tinged with brown, the mantle slightly so.

Progress towards maturity.—In the next year the plumage is of a satiny or shining black, and there are a few white filaments about the throat and on the abdomen.

Nestling.—The newly-hatched young has a flesh-coloured head and neck, and throat, with a narrow black line through the eyes and across the face; the whole of the body dark slate-colour, with peculiar, reticulated black markings, like the feathers on the back of a penguin, being produced, as a matter of fact, by the undeveloped growth of down; a white line down the centre of the breast and abdomen. Bill black, with a raised white point at the tip; legs and feet greyish-black on their upper surface, greyish white underneath.

The egg of this species is almost a perfect ellipse in shape, measuring 2 in. in length by 1.2 in. in its greatest breadth. It is pale bluish-green, thickly covered with chalky incrustations of a dirty white colour, sometimes almost continuous, giving the egg a much lighter appearance, or disposed at intervals all over the surface in pimples or warts, to the thickness even of a sixteenth of an inch, and in round splashes of varying extent.

On one occasion, some years ago, I counted thirty small Shags on the outside pier at Sulphur Island, Tauranga. Eight among them had pure white underparts, and were presumably *P. melanoleucus*, but I could not approach near enough to identify them. The rest were white-throated, there being no black ones in the flock.

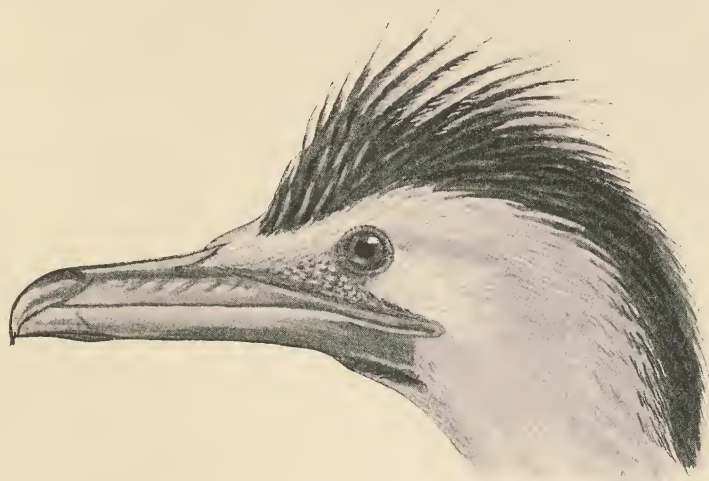
The Wanganui Museum possesses a young specimen shot by Mr. Drew in Australia. It is of a uniform brownish-black, with some white filaments on the fore-neck.

According to the British Museum 'Catalogue' (vol. xxvi., p. 401), there is an undoubted specimen of *P. melanoleucus* in the Tring Museum, received from New Zealand.

In the Otago Museum there is a Frilled Shag from Oamaru, conspicuously white on the face, sides of neck and under-parts, but without any appearance of frill or crest; so this is probably only a seasonal character.

The species has a rather wide distribution, being met with on the coasts and rivers of Australia, ranging east to New Zealand and New Caledonia, north to New Guinea, the Moluccas and the Pelew Islands, and west to Lamboch.

The Papaitonga specimen, referred to above (which is now in my son's collection), has the frontal or vertical crest so conspicuous that I made a sketch of the head from the fresh bird, which I now reproduce.



HEAD OF *P. MELANOLEUCUS*.

PLOTUS NOVÆ-HOLLANDIÆ.

(AUSTRALIAN DARTER.)

Plotus novæ hollandiæ, Gould; **Buller**, *Birds of New Zealand*, vol. ii., p. 175.

So far as I am aware, no further example of this Australian species has occurred in New Zealand, the specimen in the Canterbury Museum being quite unique.

Mr. North writes ('Rec. Austr. Mus.,' ii., p. 21):—

The Trustees of the Australian Museum have lately received the eggs of *Plotus novæ hollandiæ*, taken by Mr. J. L. Ayres at Lake Buloh, in the Winimera district of Victoria, on April 1st, 1891. The nest was built at a height of about fifteen feet, on the branch of a Eucalyptus standing in the water. It was outwardly composed of sticks, lined inside with twigs, and contained five eggs, one of which was unfortunately broken in descending the tree. The eggs are elongated, oval in form, tapering gradually towards the smaller end, where they are somewhat sharply pointed; the shell has a thick, white, calcareous covering, only a few scratches here and there revealing the true colour underneath, which is of a pale blue. Length (A) 2.41 × 1.45 inches; (B) 2.32 × 1.42 inches; (C) 2.34 × 1.45 inches; (D) 2.43 × 1.47 inches. Although very late in the season, Mr. Ayres found another Darter's nest on the same day, containing five newly-hatched young ones.

This species is found all over Australia, but is more sparingly distributed in the extreme southern and western portions of the Continent.

SULA SERRATOR.

(AUSTRALIAN GANNET.)

Dysporus serrator (Gray), **Buller**, *Birds of New Zealand*, vol. ii., p. 177.

THROUGH the kind attention of Mr. Hill, the Inspector of Schools at Napier, I was afforded an opportunity of visiting a famous breeding-ground of the Gannet at Cape Kidnappers. The following short account of my visit may be interesting to my readers.

In the afternoon of December 30th we started in a buggy from Napier and drove some fourteen miles to Clifton, the picturesque and well-ordered homestead of the Messrs. Gordon, where we remained a short time for refreshment. Mr. G. F. Gordon gave us some interesting particulars about the Gannet "rookery" on his property, which we were about to visit, and lent us horses for the trip along the coast. It was intensely hot, the thermometer registering 130° in the sun and 93° in the shade—undoubtedly the hottest day of the season. We rode about five miles along the beach, then left our horses and scaled the side of the cliff and crossed the slope beyond (a distance of about a mile altogether), and then we found ourselves right above the great Gannet nursery, to which we at once descended by a very

narrow and slippery path along the face of the cliff. We were amply repaid for our trouble, for we happened to arrive at a fortunate time (just after sunset), when all the old birds had come in from their fishing, so that we were able to view the proceedings on the breeding-ground under the most favourable conditions.

Standing boldly out of the sea beyond the Cape are two conical "sugar-loaves" of Lower Miocene formation, and the cape itself presents a rounded head-land with an arched passage right through it, which is distinctly visible from the decks of steamers following their usual track along the coast. From this head-land the land rises in three little peaks, each successively higher, all of the same clay-marl formation, and then we came to a small plateau, about an acre in extent and about 200 feet above the sea, the whole of which is occupied by the Gannets. On each side of this little plateau the land slopes upwards. The actual breeding-ground is in the centre, which is perfectly level, and the birds occupy the higher ground for resting on, the whole surface being worn bare by the constant traffic over it. At the time of our visit there were probably over a thousand birds nesting there. Some of the nests contained sitting birds, there being only one egg in each nest; but by far the larger proportion contained young birds (never more than one) in all stages of growth, from the newly-hatched naked chick of a uniform black colour to the half-fledged nestling. But most of the occupants of the nesting-ground were un-fledged birds covered with a thick growth of down of snowy whiteness. These were to be seen all over the ground, either squatting beside an old bird that was incubating or strutting about the ground in a very important fashion. In the hollow I have described the nests were so crowded together that it was a matter of difficulty to step between them. The nests are carefully formed, looking like inverted shallow clay basins, with a depression in the centre filled with soft seaweed, and measuring about 18 inches in diameter.

As I have said, we arrived just as the old birds had completed their fishing operations for the day. They were crowded close together on the rising ground on both sides of the nesting-place, each of them doubtless stewing in his crop a supply of fish to be regurgitated later on for the benefit of the young birds, who were manifesting the utmost impatience for their supper by a continuous "swirling" cry, like that of young Shags. We sat down about a dozen yards from the breeding-ground and watched operations with much interest for some time, without apparently causing any alarm to the birds; but, on our attempting to get nearer, the Gannets not actually sitting on the nests or attending to the young ones rose in a body and filled the air with the graceful sweeping of their black pinions. They were so closely packed together as they rose that it seemed to us quite a marvel that they could vibrate their wings so rapidly and at such close quarters without coming into actual contact with one another. Having once risen into the air, the birds continued their hovering overhead during the whole of our visit, and we could see them still on the wing, long afterwards, as we rode homewards along the beach. It was certainly a very pretty sight, and quite an unexpected one, for visitors at an earlier period of the day find only the incubators or the birds that happen to be at home performing their domestic duties. We walked boldly down into the breeding-ground and found that, as a rule, old birds sitting on newly-hatched chicks would not vacate their post of duty till compelled to do so, striking fiercely with their bills at the feet of any intruder. I switched one in the face with my pocket-handkerchief, but she showed fight and refused to leave the nest, so I left her there. I noticed that where the nest contained only an egg they were not so devoted, always rising in the air as soon as we had approached within a yard or two. There were many dead young birds strewed about the breeding-ground, in various stages of decomposition, and from these 'decaying' objects there came an unpleasant smell, but there was nothing disagreeable

in the nursery itself. Everything seemed well ordered and under excellent discipline. In protecting its naked nestling the old bird would cover it up with her broad webbed feet and press it down into the nest as if determined to stamp its young life out, but without any apparent injury to the chick, which was quite active and perky immediately on being released from this parental pressure. I did not come for specimens, but to inspect the breeding-place; however, before leaving I annexed a fine woolly nestling which was strutting about with the air of a lord chancellor, and duly converted him into a cabinet specimen. The rest of the birds, old and young, we left unmolested, and came away from Cape Kidnappers much pleased with the result of our visit, and, after a delightful drive in the cool evening air, arrived at Napier at 10 p.m. On our way along the beach we found a fledgling which had evidently fallen from the "rookery" and had floated a couple of miles down the coast, but was apparently still attended by the parents, for it was in excellent condition. From this bird I took the following notes:—

Fledgling.—Feathers appearing on the head, shoulders, and upper-surface of wings, lower part of back, breast, and sides of body of a slaty-black colour, each feather with a large triangular apical spot of white, even the secondaries and primary coverts being thus marked; bill and naked face, brownish-black; feet, blackish-grey with broad whitish lines down the tarsus and along the toes.



GANNETS ON THEIR NESTING-GROUND.

Captain Waller, of the 'Anglian,' tells me that in muggy weather he always finds the Gannet on the wing an infallible sign that he is nearing the Three Kings. On one occasion, however, he saw three of them when upwards of two hundred miles from land, and the occurrence was so unusual that he made an entry of it in his log.

Respecting a closely allied species (*Sula capensis*), I find the following entry in my diary for 1894:—

February 16th.—As we approach the Cape bird-life is in evidence again. Shags and Petrels and Boobies are plentiful, and an astonishing number of Gannets. Of the latter I counted one hundred in less than twenty minutes, all proceeding northward, going with the wind and flying high. I observed about half-a-dozen going in an opposite direction and against the wind, and these kept very near to the surface, where, owing to the waves, the resistance would be less felt. As we reached Table Bay, about 9 p.m., a perfect storm came over the mountain, and we had to cast anchor in the offing and wait for it to abate. Was it the instinctive knowledge of the approaching gale that made all the Gannets hurry northward for shelter in the afternoon? On Wednesday night the whole sea was aflame with phosphoric light; last night and to-night it was black as ink. This may be due to sudden changes of temperature in the water.

For the foregoing photograph of Gannets nesting on the slope of a cliff at Cape Kidnappers I am indebted to Messrs. A. R. W. Lascelles and D. Hamilton.

ORDER PELECANIFORMES.]

[FAMILY SULIDÆ.

SULA CYANOPS.

Dysporus cyanops (Sundevall), Cheeseman, Trans. N.Z. Inst., vol. xxiii., p. 293.

THROUGH the kind services of Mr. Cheeseman I have received some fine specimens (of both sexes) from the Kermadec Islands.

Mr. J. C. McLean writes ('Ibis,' 1892, vol. iv., 6th ser., p. 254):—

In the last volume of the 'Transactions of the New Zealand Institute' (vol. xxiii., p. 223), Mr. Cheeseman states that in Norfolk Island *Sula cyanops* lays two eggs in the nest, while in the Kermadec Islands it lays only one. Again, Mr. North says ('Desc. Cat.,' p. 363) that 'in Australia the nest of *Dysporus serrator* usually contains two eggs. Now, in New Zealand, one egg is the usual number laid, and in a breeding-station that I have visited in four different years I have never seen more than one egg in each nest.' [That also is my experience.]

Mr. North, in his interesting account of the birds inhabiting Lord Howe Island, writes:—

The Masked Gannet was found breeding from September to December; little or no attempt is made at forming a nest, the eggs, two in number, usually being deposited on the bare ground; when newly laid, they are of a pale greenish-white colour, which in most instances is covered with a thick coating of lime; after being sat upon for a few days, the eggs become soiled and assume a dirty-brown hue. In form they vary from short to long ovals.

S. cyanops is very stupid, sluggish, and easily captured, for, when climbing the steep sides of the islet, they may be literally walked over before any attempt is made on their part to waddle off. The egg, of which we obtained a few, is white, notwithstanding Gould's statement to the contrary, that it is stained red. (Described by Ramsay, *loc. cit.*, p. 679.) The eggs are simply laid between tussocks of grass. In Gould's figure the legs and feet are represented as of a peculiar green, and the iris of the eye yellow. Every example collected by us, on the other hand, had these portions of the body black. Gould's representation is far from a good one.

Vol. ii.—7

SULA SULA.

(BROWN GANNET.)

Sula fusca (Vieillot), Hamilton, Trans. N. Z. Inst., vol. xxi., p. 128 (1888).

A NEW ZEALAND killed specimen of this well-known species was recorded by Mr. A. Hamilton in July, 1888. It was shot in the Harbour of Napier, and is still preserved in a local collection there. As Mr. Hamilton remarked in his article, the notable part of this matter was not the stranger's visit, but that the species had not been recorded before in New Zealand, seeing that it has been met with in nearly all the temperate regions of the globe.

Mr. M. J. Nicoll, in writing of this bird on St. Paul's Rocks, just under the Equator, says ('Ibis,' 1904, p. 37):—

"This Booby was certainly the most abundant bird on the islands. Its two eggs were laid on the bare rock, and were in every case surrounded by dead and decomposing Flying-fish. On Booby Hill it was impossible to walk without touching the birds. The half-grown young were far more spiteful than the adults, and several of them chased us down the hill, biting at our legs."

FREGATA AQUILA.

(GREAT FRIGATE-BIRD.)

Tachypetes aquila (Linn.), Buller, Birds of New Zealand, vol. ii., p. 182.

THE fine male bird already mentioned by me as having been obtained at Castle Point in February, 1863 (vol. ii., p. 185), is with my original collection in the Colonial Museum at Wellington; and in the same gallery there is a locally-mounted specimen of the female, the history of which I have been unable to ascertain.

In May, 1901, I received from the late Captain Fairchild a male, in beautiful plumage, that had struck itself against the lantern at the Cape Farewell Lighthouse on the night of the 15th April, and been picked up in an uninjured state. It was kept alive by the lighthouse-keeper for a few days, but could not be induced to eat anything. It was then killed and converted into a very presentable specimen.

This "vulture of the sea" has a tropical range, and is comparatively abundant in the Fiji Islands. Whilst staying with my friend, Captain Langdale, at Wakaya, I had frequent opportunities of observing it soaring overhead, singly or in pairs, its beautiful white throat gleaming in the sunlight, and its long forked tail being alternately opened and closed like a pair of shears. It has marvellous powers of flight, and when soaring there is scarcely any

visible movement of the wings, but there is a rapid movement of the head, first to one side, then to the other. When in pursuit of its victims, to compel them to disgorge, the whole character of the bird is changed; but I had no opportunity of witnessing this, the sea being too calm for fishing. Captain Langdale informed me that a few days before my visit he shot one with his rifle at a considerable altitude, and it came down with a crash on the roof of his house.

The last instance of its occurrence in New Zealand is recorded in a letter to myself, from Mr. William Townson, of Westport, dated 5th May, 1903, in which he says: "A male *Tachypetes aquila* was procured on the sea-beach some time back, and came into my possession shortly after it had been killed; it was in fine order, and makes a valuable addition to my collection."

The Rev. S. J. Whitmee states that on the Ellice Islands this bird is domesticated by the natives. When he was in those islands in 1870 he saw scores of them about the villages sitting on long perches erected for them near the beach. The natives procure the young birds, and tie them by the leg and feed them till they are tame. Afterwards they let them loose, and they go out to sea to get their food, and return to their perches in the villages at intervals.

Mr. Hedley did not see any tame Frigate Birds at Funafuti, but on Nukulailai, on August 2nd, 1896, he saw one, unattached, on a tall perch in front of the teacher's house.

The utilisation of this bird as a message carrier between the scattered atolls of the Ellice Group is thus described by the Rev. George Turner* :—

When I visited the group in 1876, I found that the Samoan native pastors on four of the islands were in the habit of corresponding by means of carrier Frigate Birds. While I was in the pastor's house on Funafuti on a Sunday afternoon, a bird arrived with a note from another pastor on Nukufetau, sixty miles distant. It was a foolscap 8vo leaf, dated on the Friday, done up inside a light piece of reed, plugged with a bit of cloth, and attached to the wing of the bird. In former times the natives sent pearl-shell fish-hooks by Frigate Birds from island to island. I observed they had them as pets on perches at a number of islands in this 'Ellice Group,' fed them on fish, and when there was a favourable wind, the creatures had an instinctive curiosity to go and visit another island, where on looking down they saw a perch, and hence our Samoan pastors, when they were located there, found an ocean postal service all ready to their hand!

This statement is confirmed by Mr. C. M. Woodford, who visited the Gilbert Group in 1884, but the Hon. C. R. Swayne, late H.B.M.'s Resident at the Gilbert and Ellice Groups, writes: 'I could never find that the Frigate Bird was used to carry messages between different islands. The old men always laughed at the idea.'

Mr. Moseley found the Frigate Bird nesting on guano-covered plateaus on Ascension Island, depositing their eggs in the natural hollows. These and the other birds there allowed themselves, on a first visit, to be knocked over with sticks on their nests, but they soon gained experience, and took to flight on being alarmed or molested.

The Frigate Birds were on the look-out whenever the Gannets were interfered with, and snatched the small fish which they disgorged on these occasions.

Mr. Moseley remarks that it was striking to find breeding there, in the middle of the Atlantic on the top of a steep volcanic rock, the same assemblage of birds—the Wide-awake Tern, the Frigate Bird, the White Noddy, the Tropic Bird, and *Sula cyanops*—as had been met with breeding together on a coral island at sea-level off the north-west coast of Australia, Raine Island.

* 'Samoa a Hundred Years ago and Long before.'—Turner, 1884, p. 282.

I find the following entry in my diary for 1893:—

26th March.—We found ourselves early this morning in the spacious and picturesque harbour of Rio. A string of Black Shags passed us as we were approaching our anchorage, and one or two large Gulls were hovering in the harbour, whilst high overhead birds called 'Kites' by the residents, but in reality the great Frigate Bird (*Tachypetes aquila*), were soaring about. On landing, I was astonished to see seven or eight of these 'vultures of the sea' disporting themselves in the air inside the quay, and within easy stone's-throw of the people who were crowding the thoroughfare. They were apparently intent on floating garbage, and it was most interesting to watch their rapid evolutions on strong pinions, sometimes hovering with slow flappings of the wings, the head being turned first to one side, then to the other, often wheeling suddenly down, with their forked tails quickly opened, to within a few yards of the bystanders, their crimson and yellow pouches being plainly visible as they came near to us.

ORDER PELECANIFORMES.]

[FAMILY FREGATIDÆ.

FREGATA ARIEL.

(SMALL FRIGATE-BIRD.)

Tachypetes minor (Gmelin), **Buller, Birds of New Zealand, vol. ii., p. 185.**

THE example taken on the Wakapuaka Coast in 1861, and still preserved in the Nelson Museum, is, so far as I know, the only instance of the occurrence of this species in New Zealand.

This bird is placed with *Fregata aquila* in the 'Catalogue of Birds,' but my identification of the species was confirmed by Dr. Finsch ('J. f. O.,' 1874, pp. 174-216).

Since that date, however, Dr. Finsch has come to the conclusion that this species cannot be separated from *F. aquila*.*

This smaller form of Frigate-bird is rather plentiful in Torres Straits.

Fregata ariel is generally confined to the eastern seas, from Madagascar to the Moluccas, and southward to Australia, whilst the larger species (*F. aquila*) has a range all round the world within the tropics, and, as we have seen, occasionally passes those limits.

* Messrs. Rothschild and Hartert, in their valuable notes on the fauna of the Galapagos Islands ('Nov. Zool.,' vol. xi., pp. 373-418), write:—"Dr. Finsch, in a very interesting popular article in the *Ornithologische Monatsschrift*, 1900, p. 452, declares that his studies have convinced him that there is only one species of *Fregata*; but he is entirely mistaken. Either he did not see the difference, or the museum in which he made his studies had no specimens of the small form."

PHAETHON RUBRICAUDA.

(RED-TAILED TROPIC BIRD.)

Phaethon rubricauda, Bodd.; **Buller, Birds of New Zealand, vol. ii., p. 186.**

SINCE the publication of my work numerous specimens have been brought from the Kermadec Islands, which have been politically and geographically added to New Zealand during the last decade.

One of the specimens in my collection (an adult male apparently) is remarkable on account of the lovely salmon tint which pervades the plumage.

I have mentioned (2nd edition, vol. ii., p. 187) the value placed on the red tail-feathers by the Maoris. On my first visit to Tawhiao, the "Maori King," I took with me twenty of these Amokura feathers. They were accepted as a truly royal gift!

Mr. Cheeseman records, on the authority of Mr. Bell, that this species breeds regularly on Sunday Island, one of the Kermadec group, arriving in October and remaining until the close of summer. Mr. Cheeseman received from his informant skins and eggs of this bird, proving that his identification of the species was correct.

Mr. Etheridge, writing of the birds of Lord Howe Island, says: "We observed the Red-tailed Tropic Bird on the west side of Mount Ladybird, and on the seaward precipitous face of the North Ridge. It is a remarkably shy and difficult bird to obtain."

I saw a fine series of specimens in the Honolulu Museum. The curator assured me that the young birds are very vicious, whereas the adult ones are so gentle that you may pull out their long tail-feathers, whilst they are sitting on the nest, and they merely utter a "squak" by way of protest. I remember the Earl of Pembroke, in his South-Sea narrative, telling the same story.

Colonel Floyd, who visited the Island of Mauritius in 1842, has described, from his own observations, the manner in which the Tropic Bird uses the two long, slender tail-feathers as a rudder by which to steer in a storm. ('Trans. Nat. Hist. Soc., Mauritius, 1842-45.)

PELECANUS CONSPICILLATUS.

Pelecanus conspicillatus, Temm; **Buller, Trans. N. Z. Inst., vol. xxv., p. 61.**

I HAVE in my possession the head and neck of an Australian Pelican which was shot by the Maoris, on the Wanganui River bank, about a mile above Hiruharama. This was in 1890. The bird was first observed in the early morning, and, being entirely strange to

them, the Maoris brought the head and neck to Wanganui (in the flesh) for identification, but unfortunately left the body, which was soon devoured by the pigs.

The head and neck, carefully skinned by Mr. Drew, the curator of the Museum, came into my possession some years later; and this specimen (although fragmentary) is interesting as demonstrating the actual occurrence of this noble species in New Zealand, and entitling it to a place in our list. The whole of the plumage on the preserved parts is creamy white, most of the feathers having paler tips. The bill measures: from base of forehead to end of hook, 17.5 in.; along the edge of lower mandible, 18.25 in.; greatest width (at base) 2.75 in.; width of middle portion, 1.5 in. Its present colour (dried) is yellowish-horn, shaded with dusky brown towards the tip of upper, and in the outer half of, lower mandible (probably blue in life); hook, at the extremity, lemon yellow. A bare space, half an inch wide, in front of and below the eyes. The pouch is, unfortunately, absent.

Of this fine species Mr. Gould writes: "It is abundant in all the rivers and inlets of the sea, both in Tasmania and on the Continent of Australia. I shot specimens on Green Island, in D'Entrecasteaux Channel, and I also met with it in abundance in South Port River. Owing to the advance of colonisation it had become scarce in the Derwent and Tamar when I visited Tasmania, but it may still breed on the small group called Stanners Bay Islands, lying off the south-western land of Flinders Island, in Bass's Strait."

ORDER ACCIPITRIFORMES.]

[FAMILY FALCONIDÆ.]

CIRCUS GOULDI.

(GOULD'S HARRIER.)

Circus gouldi, Bonap.; **Buller, Birds of New Zealand**, vol. i., p. 206.

ALTHOUGH the Bush Hawk has almost entirely disappeared from all the settled districts, the Harrier maintains its ground, and is extremely abundant on some of the sheep-runs. Indeed, this species appears to be steadily increasing, notwithstanding the numbers that are annually and, as I think, very unwisely, destroyed by sheep-farmers. One reason for this, no doubt, is that they are not preyed upon by the introduced pests. On the contrary, they do not hesitate to attack stoats and ferrets when they have the chance. Judge Gill told me of a combat which he witnessed between a Harrier and a stoat, in which the latter was eventually killed, although the Hawk found it too heavy to carry away with him.

In his 'History of Mankind' Ratzel tells us that, with the Kaffirs, "he who kills a Hawk must be put to death." This would no doubt be too drastic a punishment; but our sapient legislators would do well to protect this useful bird by enacting a penalty of some sort for its wilful destruction, as indeed one of the acclimatisation societies in the South Island has already had the prescience to do. I am of opinion that the Harrier has done more towards suppressing the rabbit nuisance in New Zealand than all the bloodthirsty carnivora, such as weasels, stoats and ferrets, introduced by the Government, put together. Such birds should be protected in every way and not be poisoned or shot, as is done in many parts of the country, from a mistaken notion that they are the enemies of the sheep. That the Harrier does occasionally, under press of hunger, kill and devour a newly-born or

sickly lamb cannot be denied, but in these matters it is well to strike a balance and to ascertain whether the services of this raptor to the farming interest in other directions are not cheaply purchased at such a little sacrifice as the occasional loss of a weakly lamb. Those who rashly interfere with the balance of Nature—and the killing off of Hawks is such an interference—are bound to have cause to regret it in the long run. It is just as unreasonable as a general crusade against that useful bird, the Morepork, because it has been convicted occasionally of killing a pet canary in its cage.

In its progress towards maturity the Harrier passes through several phases of plumage and is sometimes very beautifully marked. At Papaitonga I shot an adult male which was molesting my Teneriffe Quail. It was in excellent plumage, with a very distinct white frill on the lower part of the throat, and having the under-parts of the body tawny-white, stained with fulvous, and marked with broad longitudinal streaks of dark-brown, resembling somewhat a Buzzard on the under-surface; lining of the wings white, with narrow longitudinal streaks of brown; the axillary plumes pure white, with broad transverse bars of rich umber-brown; and the superior under wing-coverts crossed by numerous arrow-head patches of the same; the inner webs of the quills pale cream-colour; and the upper wing-coverts marked with a spot of rufous, more or less distinct, near the tip. Irides pale-yellow, and of sparkling brilliancy; legs rich lemon-yellow, brightest on the toes; claws black.

These Hawks are in the habit of hunting along the shores of the lake, and are a perpetual terror to the young ducks. They are destructive also to the eggs of birds nesting in the sedge, on one occasion no less than fifteen eggs being taken from a Goose's nest. They are bold enough, too, in their manner of attack. One day I saw three or four large Sea-shags (*Phalacrocorax novæ-hollandiæ*) perched on the naked branches of a lofty matai near the edge of the lake, looking very fine as they balanced their bodies against the blue sky beyond. Presently a Harrier appeared in sight, and, without a moment's hesitation, swooped down on the group of Shags, and they, much to my surprise, instead of showing fight, made precipitately for the water. On another occasion one of these Hawks made a determined attack on a flock of Black Wigeon (*Fuligula novæ-zealandiæ*) well out on the lake. The ducks splashed and dived, and evinced every sign of terror, and the assailant kept up the pursuit for fully half an hour, but without effect.

It is well known that the Harrier preys on eels, and surprise is sometimes expressed at this; but those who know anything of the habits of the eel are aware that they constantly come out of the rivers and ponds, generally at night, when they pass from one feeding ground to another, but often likewise in the early morning when there has been a heavy dew, and the ground and herbage are damp. It is on these occasions that the ever-vigilant Harrier adds this dainty to his ordinary bill of fare. I was informed by the late Mr. Robson that, when staying at a run-holder's house in the Hawke's Bay district, he frequently saw a cat belonging to the household bringing in large eels; and, his curiosity being aroused, he, on several occasions, followed the cat and found it watching for its prey beside a deep pond which was known to be full of eels. The cat had discovered the roving propensities of these animals and, for want of more exciting occupation, had developed the character of an eel-catcher.

A beautiful specimen of the extremely aged, white-plumaged Hawk (not an albino) from Papaitonga is now in my collection. My son sent me the following interesting account of the manner in which the bird was secured:—

November 7th, 1895.—A sheep was killed yesterday, and deposited near the entrance to 'Te-kaari-a-Maui.' A little after daybreak this morning a native, who was out on the lake 'eeling,' saw

the bird descend upon the bait, but he took himself off again before I was informed. About noon there was a cry of 'The White Hawk,' and, sure enough, there he was sailing over the lake towards his *déjeuner*. But, at this moment, another Hawk, evidently on the same errand, arrived and, seeing each other, they veered away in another direction, apparently with the object of giving each other the slip. A few minutes later they both returned, only to come face to face, when there was a 'regular set-to' in mid-air, right across the lake, the White Hawk completely routing his younger rival. Presently the former swooped down where we knew the bait to be. I rushed up to the house for my gun, and when I came out I found a party of ten or twelve Maoris squatted on the slope intently watching, and of course backing the wily Hawk. When within forty yards he heard me and was up like lightning; but he was too late, and a minute afterwards the handsome bird was in my hands. Having been killed with quail-shot the specimen was quite uninjured.

From my son's account of the encounter in the air he witnessed above the placid waters of Papaitonga, I concluded that his "White Hawk" was a male, and so it proved on dissection, the testes being very conspicuous.

The bird in this hoary condition of plumage is distinguished by these Maoris as "Kahu korako." But the White Hawk of Maori traditions, called "Matakirea," was apparently an albino. Such an example came into my hands shortly before I left the Colony. It had been caught, uninjured, in a rat-trap in the Christchurch district, and I purchased it alive through the kind offices of Professor Hutton, to whom it had been offered for sale to the Museum, but at too high a price. In this bird the entire plumage is snow-white, except that on the upper surface there are a few scattered brown feathers on the shoulders, two among the small coverts of the right wing, and one or two partially brown feathers among the scapulars; also, on the under-surface, one of the axillary plumes, one of the under-coverts of the left wing, and a single feather on the left thigh are brown, and there is a wash of fulvous on the abdomen. The tail, however, is of the normal colour, but one of the feathers is white on its inner vane. With these trifling exceptions, the entire plumage is snow-white, presenting a very striking appearance. On dissection it proved to be a female, and its golden irides showed that it was an adult bird.

It must have been such a bird as this which the old *tohunga* had in his mind when he narrated to Sir George Grey, "on the rocky edge of a hot spring shaded by pohutukawa-trees," on the Island of Mokoia, the story of Hinemoa, the maiden of Rotorua:—

She rose up in the water
As beautiful as the wild White Hawk,
And stepped on the edge of the bath
As graceful as the shy White Crane.

At Papaitonga, also, my son saw one with a perfectly white head, but it was very shy, and he was unable to shoot it.

I have noticed that this species hovers and hunts in the rain, without any inconvenience, occasionally shaking its wet plumage. The old birds are very wary. On one occasion at Papaitonga, finding that these Hawks were molesting my Sea-gulls, I shot a cat and set it as a bait. The old Hawk then in the vicinity soon espied it, but he was very shy, and evidently suspected treachery. When satisfied as to its nature by making a wide circuit overhead, he betook himself to the top of a tree-fern hard by, and remained there fully half-an-hour keeping a strict look-out. Then he swooped down upon the carrion, but on finding himself stalked he took himself off and did not return till the following morning, when I shot him and obtained a fine male specimen in full plumage.

My son called my attention to a singular fact at Papaitonga. He had observed that

after sundown all the Hawks that fly over the lake go westward. He says that this habit is invariable. Why is this? Is it that the birds prefer to roost under the high grass tussocks on the sand-hills?

At Dunedin I obtained a very beautiful adult female of this species in which the neck all round was striated with rufous, each feather being edged with that colour on both sides, whilst patches of rich rufous appeared on the bend of each wing and on the upper coverts.

Opposed as I am on principle to the killing of Hawks, because, as I have explained, of its tendency to disturb the balance of nature, I confess I was compelled to wage war against the Harriers at Papaitonga in order to put a stop to the perpetual molestation of my introduced birds, which, from their inexperience, were completely at the mercy of these marauders. By setting a bait—a dead lamb or some other similar object—I decoyed the Hawks into a little hollow near the lake and shot them as they rose, thus securing a fine series, of all ages, for my collection.

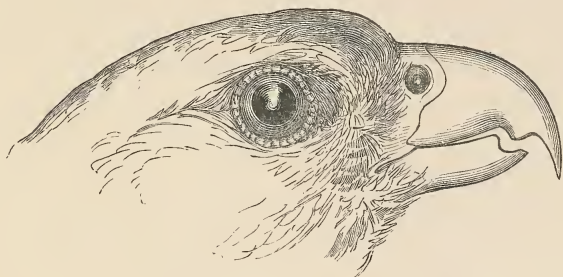
Mr. Robert Wilson writes to me from Bull's that, at the beginning of September, he met with young Harriers in a cliff near the river.

Nestling.—Covered with thick cottony down of a dark cream-colour; the quills and tail feathers are the first to sprout, and then the plumage begins to appear on the back.

Mr. Jennings showed me two downy nestlings which he took from the nest at the Three Kings Islands. One of these had bright yellow irides, whilst in the other they were, as usual, black.

Professor Newton writes to me (October 31st, 1900) that in a collection of fifty birds made by the late Mr. Wigglesworth in the Fiji Islands, and presented by his representatives to the Cambridge Museum, there is "only one of a species not before known from the islands—that is *Circus wolfi*, which might well be expected to occur there."*

This, therefore, is the Fijian form and not *C. gouldi*, as we have hitherto supposed. On the wing, or on a distant view, the two species are not distinguishable.



HEAD OF QUAIL-HAWK.

(See next page.)

* Writing on the birds found on Lord Howe Island, Mr. Etheridge says: "The existence of a Hawk, *Circus wolfi*, was determined. It frequents the North Ridge, usually in the vicinity of Mount Eliza, soaring high, and carefully keeping out of reach. The bird, however, has at times, after the manner of its kind, been known to visit the poultry-yards, and it is said to play great havoc with the wild birds."

NESIERAX NOVÆ-ZEALANDIÆ.

(QUAIL-HAWK.)

Harpa* *Novæ-zealandiæ* (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 213.**

THIS is becoming one of our rarest species, which is difficult to account for, seeing that the zeal of our acclimatisation societies has added so much to its bill of fare by the introduction of Sparrows and numerous other small birds. As an illustration of this, I may mention that on one occasion I was riding with a Maori youth from Ohau to Manakau when a Quail-Hawk flew across the road. My companion asked what it was, never having seen one before, although he had lived in the district all his life.

The last comparative examination I made, with thirty specimens before me, confirmed me in my previous view that the Quail-Hawk and Bush-Hawk although closely resembling each other, ought to be kept distinct.

Mr. Jennings is disinclined to recognise two species, on the ground that all the small birds he has dissected were males; but he exhibits in his collection (as a ♂ by dissection) a bird quite as large as ordinary examples of the Quail-Hawk.† One of his female specimens of *Nesierax australis* (in transitional plumage) is beautifully marked with rounded spots on the breast.

During a trip from the Bealey to the Canterbury plains, in 1899, the only bird I saw from the box of the coach was a male Quail-Hawk at Castle Hill. Curiously enough, this was the spot from which the finest female Quail-Hawk in my collection was obtained some thirty years before. The species, however, is now becoming very rare, and will soon disappear altogether.

I possess a fine specimen brought by the carpenter of the 'Hinemoa' from the Auckland Islands, having been shot by himself; and Captain Hutton writes to me: "I have just got a specimen of *Harpa novæ-zealandiæ* from the Auckland Islands, also a Parrakeet (*Novæ-zealandiæ* group) and a Lark from the Antipodes."

The egg of this species is a very pretty object. I have now four specimens before me. They are of uniform size, and broadly ovoido-conical, measuring 2 in. by 1·4 in.; pale-brown, richly splashed and spotted over the entire surface with reddish-brown, especially at the larger end, where there is a mixture of blackish-brown with the brighter colour.

* Our New Zealand Falcons have been generally placed by authors (as by Dr. Sharpe, in his 'Handlist of Birds') in the genus *Harpa*, but, as Captain Hutton has pointed out, that name is preoccupied by Lacepede for a well-known genus of shells, and I have accordingly been asked to invent a new generic name for the New Zealand birds, or else to fall back upon *Hypotriorchis*, Boie, or *Hieracidea*, Gould. As our New Zealand Hawks cannot be said to belong to either of these genera, I am glad to adopt the name of *Nesierax* (Oberh., 'Proc. Philad. Acad.', 1899, p. 203), as suggested to me by Dr. Sharpe himself.

† A pair of birds carefully sexed by Mr. Jennings gave the following comparative measurements:—

	♂	♀
Extreme length	15·5	16·5
Wing from flexure	10·25	11·75
Tail	7·5	9
Tarsus (which is far more robust in the ♀ than in the ♂)	2	2
Middle toe and claw	2·4	2·75
Hind toe and claw	1·4	1·9

NESIERAX AUSTRALIS.

(BUSH-HAWK.)

Harpa ferox (Peale), **Buller, Birds of New Zealand, vol. i., p. 220.**

AT Waipuna, in Hawke's Bay, I saw, on March 17th, a young Bush-Hawk boldly attack a litter of kittens, whilst actually under the protection of the maternal cat! It seized one of them and lifted it some feet in the air. The quarry managed, however, to disengage itself and dropped to the ground. The hawk, which, from its size, I took to be a female, then settled on the dry limb of a tree close by, apparently to await another opportunity; and there we left her, balancing her body in an almost horizontal position, and looming large against the clear blue sky beyond.

Marklund showed me a young bird of this species shot on Stewart Island, where, however, the species is now very rare.

I have recorded (2nd ed., vol. i., pp. 223-4) my experiences with one of these fierce little hawks which I had brought up from the nest. It became much attached to its compartment of my aviary and, on being let out, would voluntarily return to it. It was, however, quite intolerant of neighbours and on one occasion tore off the head of an inquisitive Piopio (*Turnagra tanagra*) who had inadvertently exposed it from an adjoining compartment. It was at all times fierce and remorseless, and showed none of the tenderness exhibited by the hero of the following newspaper story:—

Even a Sparrow Hawk, cruel as it is supposed to be, is not devoid of pity for a victim which has for some unaccountable reason gained its affection. At Pinner there is just now, within an aviary in one of the hostelrys there, a Sparrow and a Sparrow-Hawk dwelling together in peace and concord. Some time ago the Sparrow was given to the other for food, but by a freak of fancy the Hawk took pity on it, and to preserve its life went without dinner that day. Since then the two have lived together on the most friendly terms, but if another Sparrow is put into the cage the Hawk rends it to pieces remorselessly.

I have mentioned the loud continuous screaming of the Bush-Hawk as a sure indication of bad weather approaching. Mr. W. W. Smith writes that he has tested and proved this on many occasions, in the Lake Brunner district of the South Island, and, according to his experience, the days on which they perform their high screaming flights are followed by nights of continuous and loud calling of the Weka and Kiwi, both of which birds are equally good indicators of a coming change.

CERCHNEIS CENCHROIDES.

(NANKEEN KESTREL.)

Cerchneis cenchroides (Vig. and Horsf.), **Buller, Trans. N.Z. Inst., vol. xxviii., p. 359.**

IN 1895, I announced this addition to our list in the following communication to the Wellington Philosophical Society, to which unfortunately I am unable to add anything new:—

“In November last I received a note from Professor Hutton informing me that a specimen of the Nankeen Kestrel had been shot in New Zealand, and advising me to write to Mr. Cuthbert Studholme for particulars. I accordingly did so, and promptly received the following letter in reply:—

‘The Waimate, Canterbury, November 13th, 1894.

‘DEAR SIR,

‘On behalf of my brother I beg to acknowledge the receipt of your letter about the Australian Kestrel. I shot the bird about five years ago close to the house; it was amusing itself by chasing the common Hawks away from the carcase of a dead sheep. My two youngest brothers had seen the bird flying about here for fully a week before it was shot.

‘Yours sincerely,

‘E. C. STUDHOLME.

‘Sir Walter Buller, Wellington.’

“I have not yet seen this bird, although Mr. Studholme has kindly promised to give me an opportunity of examining it. Professor Hutton informs me that it is a female.

“More recently a specimen has been shot on Portland Island. It was sent on April 16th by Mr. J. R. Dickson, the lighthouse-keeper, to the Colonial Museum, and was handed to me by Sir James Hector for identification. Mr. Dickson, in forwarding the specimen, says: ‘The body of the bird was very fat, its crop contained crickets and grasshoppers. The iris of the eye was very dark brown, pupil black. It was very shy when perched, but not so on the wing. Its flight was much like that of the Quail-Hawk. It was shot on April 6th, 1895.’

“This bird, too, was a female, and, judging by the blueness of the upper tail-coverts, an old one.”

NINOX NOVÆ-ZEALANDIÆ.

(NEW-ZEALAND OWL.)

Spiloglaux novæ-zealandiæ (Gmelin), Buller, *Birds of New Zealand*, vol. i., p. 192.

THE Morepork is so strictly nocturnal in its habits that I ought to make special mention of one which has taken up its abode in a small clump of bush near my homestead on the Papaitonga Lake. This bird may be heard calling at all hours of the day, even in the broad daylight, and is frequently visible as he moves noiselessly from tree to tree. In this little bush reserve I have endeavoured to cultivate the native flora from all parts of the Island, and the Maoris facetiously say that this particular Owl has stationed himself there to keep guard over "Maui's Garden." This diurnal character is quite exceptional, although even in my own garden on Wellington Terrace, I have known a Morepork on a dull afternoon, but in broad daylight, truss a Sparrow in its talons and bear it off, causing consternation to the whole community of Sparrows far and wide. The latter undoubtedly have the power of conveying information to one another, and assemble accordingly in a sort of noisy indignation meeting.

I have found this little Owl very numerous in the *Fagus* forests of the interior, its nervous call always commencing as soon as the gloom of evening covers the silent woods.* During wet nights it appears to feed on the large brown beetle (*Prionoplus reticularis*), which flies in the rain.

I have recorded (2nd ed., vol. i., p. 193) a partial albino of this species. An intelligent young half-caste informs me that he saw a snow-white one at Hokianga. It was in the day-time, and he followed it a considerable distance through the woods, hoping to secure it, but without success.

As late as February 3rd I have heard young Owls in my garden at Papaitonga uttering their long-drawn sibilant note, then beginning to change into a scream.

Writing of the Owl on Lord Howe Island, Mr. North says:—"Some of the New Zealand specimens come very close to the Lord Howe Island birds, but lack the white face, lores and chin. Should they eventually prove to be identical, this will form an interesting link, connecting the avifauna of the two islands. The Norfolk Island bird is said to be *Ninox boobook*, but it is more likely to prove to be *Ninox novæ-zealandiæ*, or perhaps the present species (*N. albaria*)."

* The clearness with which this bird enunciates the words from which it takes its popular name has given rise to a good many amusing stories. The last one, taken from a recently published book, has found its way into the London newspapers and gone the usual round:—"There is in New Zealand an Owl which, from the cry it utters with startling clearness, is known by the Colonists as the 'Morepork.' A few months ago two young Englishmen built a log-hut in the bush. They were quite alone, and for a time they had no meat, except the flesh of wild hogs, which were brought to them by friendly Maoris. Of this they became as weary as did the rebellious Israelites of their Quail. One night, after both had turned in, one of them called out, 'I say, what have we got for breakfast?' Instantly a solemn voice out of the darkness answered him, 'More pork! More pork!!' The settler ran to the window and looked out. He had heard the bird before, and seen it, but he had no idea what manner of fowl it might be. There was the speaker, almost within arm's reach. 'Well, I'm blessed,' he called to his brother; ' 't isn't a nawk, and 't isn't a neagle; it's a nowl!'"

Nestling.—Covered with thick, slaty black down, with projecting white filaments, which are shortest on the crown, sides of the head and rump, imparting to these parts a whitish aspect.

A specimen in the Otago Museum, just becoming fledged, has very conspicuous lunate discs on the face.

In the 'Birds of New Zealand' (vol. i., p. 205), while rejecting *Strix parvissima*, Ellman, as a New Zealand species, I quoted Mr. T. H. Potts' observation in 'Out in the Open' in favour of the recognition of a "very small Owl" from the woods near the Rangitata River and from Mount Peel forest, pointing out that Mr. Potts had recorded the species "on hearsay evidence." Mr. W. W. Smith, being familiar with the facts, has since written a letter to the 'Ibis' * in explanation. He says:—

In May, 1880, Mr. Mitton, then manager of Mount Peel Station, brought me a small living Owl, which he desired me to stuff and mount for him. He stated that it had been captured with the hand the previous afternoon by one of the shepherds, on his way home from Peel forest. In handing it to me he remarked that it was 'surely a different kind of Owl,' as it was so much smaller than any he had seen. I, however, explained to him at the time that it was none other than an exceptionally small 'Morepork' (*Spiloglaux novæ-zealandiæ*), and was no doubt a female, a fact which I subsequently verified while dissecting the specimen. It was an immature bird, the general plumage being slightly darker than many I have seen, and it lacked much of the distinct and neat markings of grey and white on the wings and breast peculiar to adult birds of that species. A few weeks later the same gentleman brought me a slightly larger bird which he had captured near the gorge. Since then I have taken two diminutive females, in different localities and in similar plumage, but, excepting their smaller size, there was nothing to lead any one with a slight knowledge of this little Owl and its variations to suppose them to belong to a smaller or distinct species.

ORDER STRIGIFORMES.]

[FAMILY BUBONIDÆ.

SCELOGLAUX ALBIFACIES.

(LAUGHING OWL.)

Sceloglaux albifacies (Gray), Buller, *Birds of New Zealand*, vol. i., p. 198.

THIS remarkable Owl, which is now on the verge of extinction, was named by Mr. G. R. Gray, in 1844, *Athene albifacies*, and was afterwards transferred by Dr. Kaup, of Darmstadt, to his genus *Ieroglaux* and sub-genus *Sceloglaux*, where it remains, admitted on all hands (as Mr. Gurney observes) to be a strongly differentiated, insular form—a relic, perhaps, of a far-distant time when a giant bird of prey, *Harpagornis*, half as large again as the Golden Eagle, also inhabited New Zealand. He adds that Mr. F. Beddard, who has examined the skull, considers that it comes nearer to that of *Strix* in its relative proportions than do the skulls of many other genera.

* The 'Ibis,' 1890, vol. ii., 6th series, p. 24.

I made such persistent efforts all over the country to obtain specimens, after my return from Europe, that I think it highly probable that the single pair which I was fortunate enough to procure alive for Mr. Rothschild will be the last we shall ever get. Seeing that the single bird belonging to the Canterbury Acclimatisation Society lived in confinement some eighteen years, and laid an unfertilised egg (now in the Canterbury Museum) shortly before its death, we may reasonably hope that in this way the race may be perpetuated.

Mr. W. W. Smith, of Ashburton, who has been indefatigable in his efforts to obtain specimens for me, writes from Oamaru: "The species inhabited this district plentifully forty years ago, but has now entirely disappeared. I have gathered the castings for miles around, buried in the sand or dust covering the bottom of fissures in the rocks." He attributes the final extirpation of this fine bird to the introduction by the Government of the weasel for the suppression of the rabbit nuisance.

My two live Owls were remarkably docile and gentle, allowing themselves to be handled freely without any attempt to bite or use their claws. When shipped to England they were in very handsome condition. The female (generally the finer bird among this class) had the face almost perfectly white, the feathers composing the disc having black hair-like shafts and filaments, and those along the outer edges, composing the fringe, having black centres; wing-coverts presenting numerous large rounded spots of yellowish-white, their markings increasing in size and becoming lozenge-shaped on the scapulars, there being one on each vane, that on the outer vane being very white and conspicuous; transverse bars on upper surface of tail broad but obscurely marked. Bill bluish-grey, yellowish towards the tip and along the cutting-edge; cere pale greenish-yellow; irides dark lustrous-brown, almost black; toes pale-yellow, the claws grey, with darker points.

The other bird (which I assume to be a male) is scarcely inferior in size, but has the plumage generally duller, the white markings less conspicuous, with the bill and feet paler in tint.

This bird, on being taken from its cage to be photographed by Mr. Henry Wright, manifested so persistent a desire to get away from the light, and to hide itself in the shade of the ferns among which I had placed it, that it was very difficult to obtain a momentary shot in focus, although in the end the result was a highly satisfactory one. During the day it had a listless, dazed look, and generally kept its eyes partly closed. The only occasion on which I saw it awake from this lethargy was when I brought a live Hawk (*Circus gouldi*) near to the wire-netting of its enclosure. It did not then manifest any excitement or alarm, but slowly raised itself up to its full height two or three times in succession, with the feathers of the head puffed out and the eyes opened to their full extent, as if in silent wonderment at so strange an apparition.

Both birds exhibited the same natural docility. On being taken hold of by the feet they would offer no resistance and utter no sound, but would simply flap their wings slowly, and turn their dark orbs full into the face of their captor, as much as to say, "And, pray, what may this mean?" They ate very sparingly of their food (lean mutton or sliced ox-heart), and always at night. During the time they were in my possession I never heard them emit any sound.

Mr. Jacobs, the taxidermist at Masterton, has given me a characteristic account of a very fine example which he obtained alive at Nelson, and afterwards mounted for the local Museum. A man, so he informed me, was travelling from Nelson to the West Coast, when he observed a large Owl squatting on the ground near the roadside. He dismounted from his horse and caught the bird. Then, selecting a retired nook in the adjoining woods, he drove a thick pole into the ground and secured his captive to it by the leg, allowing a sufficient

length of flax to permit of the Owl moving freely about over the ground. On his return by the same road two days later he found that the bird had snapped, or in some way had got disengaged from, the flax string, and was perched on the top of the pole, permitting itself to be recaptured without the slightest resistance. He took it on with him to Nelson, and, not knowing its value, sold it to the narrator for a few shillings. It now graces the collection in the Nelson Museum.

There is a specially fine male bird in my collection, obtained through Mr. W. Smyth, of Caversham. It was purchased from a settler, who procured it in the Blue Skin District, Otago, in May, 1874.

The two specimens of *Sceloglaux albifacies* in the Otago Museum (♂ and ♀) are similarly marked on the primaries, with spots (not transverse bars) on the outer web; and both have very conspicuous ocellated yellowish-white markings on the scapulars. The fine example of the female in the Canterbury Museum, of which mention has already been made, has the general plumage dark chocolate-brown, the feathers being more or less broadly margined with fulvous-brown. The scapulars are varied with large, irregular spots of yellowish white; the primaries are blackish brown with paler tips, and exhibit four widely separated yellowish-fulvous spots on their outer vane; the secondaries paler brown, the outer web similarly marked but with larger and more conspicuous spots, having the appearance of bars. The feathers of the under parts are of a warm chocolate-brown with a broad, club-shaped centre of blackish brown. The wing from the flexure to the tip measures 11 inches, and the tail 5 inches. The tail-feathers are of the same blackish-brown colour as the primaries, with four very indistinct transverse bars of whitish fulvous. The tarsi are thickly feathered and of a light tawny colour; toes covered with long white hairs or bristles of a shiny character. Bill yellowish brown; claws dark brown. The feathers on the lower forehead, forming the rictal crest, are very narrow or lanceolate, with black shaft lines; and the stiff bristles surrounding the bill are black.

The two specimens described above have very conspicuous facial discs of white, justifying Mr. Gray's name for the species. Another, which I saw in a private collection at Dunedin, has a still greater extent of white on the face and cheeks.

In March, 1895, Sir Francis Boileau obtained a live one (which afterwards proved to be a male) from a taxidermist in Christchurch, and brought it to England with him. This bird in captivity afforded Mr. J. H. Gurney materials for an interesting article in the 'Transactions' of the Norfolk and Norwich Naturalists' Society (vol. vi., pp. 154-8). In the course of his paper he says:—

The *Sceloglaux* in captivity at Ketteringham was tame, but not tame enough to eat comfortably when anyone was by; but he had an appetite almost too good for a captive, and ejected the feathered portions of his meals in the customary pellets. With two toes on either side of the perch he sat contented enough in the darkest corner, where his flat-crowned and rather square-shaped head, and prominent black eyes, watched with Minerva's wisdom for what was coming; viewing visitors with apathy, but the approach of a dog with some perturbation. . . . He was in good health when he arrived in Norfolk, but felt the cold of an English November very much, though in his own country said to brave the icy blasts of snow storms—crouching in a corner, although the cage was in a conservatory, and on November 9th, died, but not from want of food, as he was, 'if anything, too fat.

Mr. W. W. Smith, of Ashburton, to whom, as already recorded, I have been indebted for some beautiful examples of this rare Owl, writing to me in August, 1903, says:—

I fear our old and genial friend, *Sceloglaux albifacies*, is now almost extinct in Canterbury. My last visit to Albury, on the Tengawai River, resulted in a long and unsuccessful search for specimens. Although



RUFOUS-FACED OWL.
SCELOGLAUX RUFIFACIES.
(ONE-HALF NATURAL SIZE.)

p. 171

I found castings, which were probably one or two years ejected, I could not find any fresh signs of the bird. The district is now closely settled, and sheep roam in large flocks among the limestone rocks the birds formerly inhabited. The residents of the district informed me that they rarely hear the laughter-like call of this once common Owl.

No one looking at the Laughing Owl would suppose that it is very responsive to the finer emotions; but a settler in the back country, whose house one of these birds frequented, declared to me that it could always be brought from its lurking place in the rocks, after dusk, by the strains of an accordion. Soon after the music had commenced the bird would silently flit over and face the performer, and finally take up its station in the vicinity, and remain within easy hearing till it had ceased. I have already recorded (2nd ed., vol. ii., p. 51) the case of a tame Sea-gull, which was always attracted and visibly affected by the notes of a piano.

ORDER STRIGIFORMES.]

[FAMILY BUBONIDÆ.

SCELOGLAUX RUFIFACIES.

(RUFOUS-FACED OWL.)

Sceloglaux rufifacies, Buller, Ibis, vol. iv., p. 639 (1904).

Ad. ♀ : **similis *S. albifaciei*, sed valde minor, et supra rufescente suffusus; facie sordide rufescenti-brunnea, minime alba; pileo nuchaque nigricanti-brunneis; remigibus rufescenti-brunneo regulariter fasciatis et terminatis; rectricibus concoloribus fulvescenti-brunneis, obscure pallidiore brunneo fasciatis; rostro flavicante; pedibus sordide flavis.**

I HAVE on more than one occasion, in the course of this work, dwelt upon the more or less conspicuous appearance of representative forms in the North and South Islands respectively, due no doubt to the long-continued separation of these insular areas, with a narrow but deep strait of the sea running between. To the many instances already recorded I have now to add another.

As my readers are aware, there still lingers in the South Island a large species of ground-feeding Owl, which has been treated of in the immediately preceding pages under the name of *Sceloglaux albifacies*. According to the resident Maoris, in former times it was comparatively abundant; but since the time of our colonisation of New Zealand, in 1840, it has always been a rare bird, and it is now on the verge of extinction. Comparatively few collections contain specimens of it, and more than one living example during the last ten years has brought £50 in the market. This species, as it now appears, was strictly confined to the South Island, but a closely allied and representative form (known to the Maoris under a different name) was formerly an inhabitant of the North Island. This latter is

without doubt now extinct; and, so far as is known, the only preserved specimen of it in the world is the one which I have had the honour of naming, and of which an excellent portrait by Mr. Keulemans accompanies this article. It is now in a private collection, having been obtained from the Museum authorities at Wellington by exchange.*

I will now explain how I made the discovery of this new species. On my last visit to Nelson I was informed by Mr. Martin, the well-known taxidermist, and a most observant

* This is the specimen, from Wairarapa, in the North Island, referred to in 2nd ed. vol. i., p. 199, as being then in the Colonial Museum, and as being "several shades darker than those from the South Island, the whole of the plumage being deeply stained with ferruginous," and as having "the facial disc washed with fulvous."

Mr. Walter Rothschild, who has examined this specimen, is of opinion that it represents a very young bird, and thinks that, before finally accepting it as a distinct species, it ought to be compared with *Sceloglaux albifacies* of a similar age. Dr. Hartert, who apparently agrees, says that, according to his view, the rufous face is the only distinguishing character. Professor Newton and Dr. Sharpe (both acknowledged experts) have pronounced it to be, in their opinion, an adult bird, as to which I, also, have not the slightest doubt; whilst, on the other hand, is the significant fact that a very young male of *Sceloglaux albifacies* which passed through my hands had a conspicuously white face. It appears to me that the condition of the secondaries in the type *S. rufifacies*, which are much worn and abraded—showing that the bird had passed its first moult—sufficiently negatives Mr. Rothschild's assumption of its being an immature bird, or, as he expresses it, "an extremely young, hardly fledged *Sceloglaux*."

The point is of so much importance that I offer no excuse for placing on record the two communications I have received.

Professor Newton writes: "Having just examined your Owl, with Dr. Gadow, I write at once. First, I should say that *Sceloglaux albifacies* is a species of which I know very little. The only specimen I have ever looked at very closely is the one we have here, which came from your collection, and has a defective tail. I must, at some time or other, have examined the *Sceloglaux* in the Norwich Museum, but that would be about forty years ago at the least. The difference in colour is of course very striking, but knowing what occurs in so many other Owls—where you have a rufous phase and a grey one of the same species—I rather hesitate to declare the difference specific. As to the age of your specimen: Dr. Gadow at once exclaimed that it was young, but I agree with you that the fresh condition of some of the secondaries compared with the abraded state of others shows that the bird had moulted, though not necessarily to be in adult plumage. You know that our Tawny or Brown Owl is often three or four years before it gets rid of its tawny dress and assumes the grey or brown one; meanwhile the character of the markings continues to be juvenile; and so I think, with Dr. Gadow, that it is with your specimen. It is not easy to describe the change that takes place, but it is that the markings of the fully adult bird are mainly transverse, or show a transverse tendency, while those of the young are more longitudinal. This seems to be a more or less general rule in Owls, as in some other birds. Even here, and still more I think on the Continent, it was some time before people got to know that the rufous or brown (or grey) Owls were one and the same species, the commonly (mis)called *Syrnium aluco*; and in America it is within comparatively few years that the Red and Grey *Scops* Owls have been admitted to be but phases of the same species. I see no reason why it should not be the same with *Sceloglaux*; and though I do not blame you in the least for describing your specimen from the North Island as distinct from the old species of the South, I think that if I were you, I would not express myself too strongly on the matter, for it seems to me quite within the bounds of possibility that the former is the rufous phase of the latter. You may have seen young *S. albifacies* which are not rufous, but that is, if I am not mistaken, the way with *Syrnium aluco* (or, as I prefer to call it, *Strix stridula*) in Scandinavia, where the tawny plumage is not commonly met with, and I rather think that the same has been observed, in some districts, with the American *Scops asio*."

"Whatever the result may be, it is a good thing that you should figure this specimen. You must, I think, admit the possibility of its being the red phase of the old species. It would be a matter of very great interest to know that so peculiar a form, as *Sceloglaux* undoubtedly is, was subject to the same dichroism as are so many other Owls."

Dr. Bowdler Sharpe writes as follows:—"I have examined the type of *Sceloglaux rufifacies*, and I should say that it is an *old* bird and *not* a young one. The worn secondaries appear to me to prove the bird to be an adult one, and, in addition to the difference of size between the North and South Island species, I think the colour warrants their being separated as distinct species."

Mr. Rothschild discovered that the taxidermist had skilfully replaced the tail of this specimen with that of an Australian Owl (*Ninox boobook*); but nothing turns upon that, as I have not made the tail a specific character.

man, that when he came out to the Colony in 1856, in the ship 'Creswell,' he was acting as servant to Captain King, a gentleman much devoted to natural history. Martin, who had been a pupil of Gardner, of Oxford Street, was employed by his master in making a collection of native birds; and, almost immediately after landing at Wellington, he proceeded up the West Coast, shooting and skinning birds as he went, till he had collected enough to fill several large cases. When camped in the woods under Mount Egmont, in the Taranaki district, one evening at dusk a large bird flew over the party, making a loud laughing noise—*ha, ha, ha!* Martin shot the bird, and it proved to be an Owl. It was nearly as large as the specimen of *Sceloglaux albifacies* in the Nelson Museum, but much darker in plumage, and without any appearance of white on the face. The eyes, as he perfectly remembers, were of a dark-brown colour. This was impressed on his mind at the time, because he had shot and skinned many specimens of the Morepork, of much smaller size, and with vivid yellow eyes. What ultimately became of Captain King's collection nobody knows. If it had been acquired by any public museum we should probably have found some record of it, and an inspection of the Owl shot by Martin under the shadow of Mount Egmont would have been most interesting. I fear there is no chance of this now; but his recital induced me to make a more critical examination of the Wairarapa bird, the only specimen of *Sceloglaux* from the North Island of which we have any positive knowledge. After comparing it with the series of *S. albifacies* in my own collection, and with some ten other specimens in various museums that were known to me, I came to the conclusion that the North Island bird was quite distinct as a species from the white-faced Owl of the South Island; and in selecting a distinguishing name for it I have chosen its most distinctive feature.

When I was living in Wellington, in the summer of 1868-9, the bird described above was sent in to the Colonial Museum, freshly killed, by a settler in the Wairarapa district, about fifty miles from the city. It was carefully skinned and the sex determined by the Museum taxidermist, and the specimen placed in the type collection. I took an early opportunity of comparing it with the only specimen of *Sceloglaux albifacies* in the Museum collection—one received some time before from Otago—and although appreciably smaller in size, I took it to be a dark phase of that species. Two years later I came to England to publish the first edition of my 'Birds of New Zealand,' and, at Sir James Hector's request, I brought with me this Owl, with other skins of New Zealand birds, for the purpose of having them mounted for exhibition in the Museum. This task was entrusted to the late Mr. Burton, of Wardour Street. During this operation the tail of the Owl, probably on account of some defect in it, was replaced by one from another species; but it was so well matched that, although the bird remained in the Colonial Museum for five and twenty years, the counterfeit tail was never detected by Sir James Hector or myself. Shortly before my last departure from the Colony, Sir James Hector permitted the specimen to be taken out of the glass case for closer scrutiny.

The species differs from *Sceloglaux albifacies* in its richer and darker colouring. There is no white about the face, the whole of the facial disc, including the ear-coverts and the throat, being dull rufous-brown; the feathers of the forehead are paler, with a central streak of blackish brown, which increases on the vertex and occiput, becoming the predominating colour on those parts. It differs further from *S. albifacies* in having the entire surface strongly suffused with rufous, the shoulders being almost entirely of that colour, shaded or clouded with brown. Another distinguishing feature is that the quills are marked with regular, transverse bars and a terminal edging of rufous brown; on the secondaries these bars are paler and more conspicuous, being equidistant from each other and of even breadth

right across the feather; on the scapulars they are likewise present, but here they are somewhat broken, and of a richer colour. The upper wing-coverts, for the most part, have one transverse bar of rufous and a terminal edging of the same colour on both webs. The underparts of the body are as in *Sceloglaux albifacies*. Bill, lemon-yellow; the rectal bristles, black. Feet, dull yellow; the tarsi closely feathered, and the toes beset with short, whitish hairs; claws, horn colour.

In size it is intermediate between the Laughing Owl and the Morepork. Although the specimen here described is a female, and, consequently, the superior sex as to size, its measurements fall short of those given for ordinary-sized males of *Sceloglaux albifacies*.

Ad. ♀.—Length, 17·5 inches; wing, from flexure, 10·5; tail, 6; bill, along the ridge, 1, along the edge of lower mandible, 1; tarsus, 2·25; middle toe and claw, 2.

Obs.—This specimen, as already stated, was killed in the Wairarapa district, in the North Island, some fourteen years after Mr. Martin shot the bird mentioned above in the Taranaki district.

On casting my mind back, I am able to remember some five-and-twenty examples of the Laughing Owl that I have examined, from time to time, all obtained in the South Island. The specimen described above is the only one, so far as I am aware, ever obtained in the North Island.

Mr. Morgan Carkeek, on seeing my living specimen of *Sceloglaux albifacies*, assured me that he had seen one of these Owls before. It was many years ago, when he was surveying for the Government in the neighbourhood of Porirua Harbour. On entering an abandoned Maori hut in the daytime he found one "roosting" there. It was very tame, and remained there several days. He brought it food from time to time, and it made no attempt to escape from the hut. To the Maoris of his survey party it was quite a new bird. I have no doubt now that this was the North-Island bird herein described by me as *Sceloglaux rufifacies*.

There is a very dark-coloured specimen of *S. albifacies* in the Canterbury Museum; but it is quite unlike the bird described above. It is the largest example I have seen, and has a very conspicuous white rim round the face, each of the feathers composing this outer disc having a black shaft-streak. There is no rufous colouring, as in *S. rufifacies*, but the whole of the plumage is strongly suffused with chocolate-brown. This bird died in captivity, having lived from eighteen to twenty years in the Gardens of the Christchurch Acclimatisation Society, during which time it laid several infertile eggs.

The Maori name for this Owl in the North Island is Hakoke. It is probably the bird referred to by the Maoris as Korohengi, and described as "a large kind of Owl that hopped on the ground and stood very upright," formerly inhabiting the woods of the interior.

Possibly this is also the bird referred to by old Hopa Te Rangianini, the chief of Ngatimatakore (Waikato), who says that the Korihawa was a ground bird with large eyes like an Owl. He added, "There was another bird something like the Korihawa called Tiutiu; and they both disappeared sixty or seventy years ago."

Mr. J. C. McLean, of Gisborne, New Zealand, has sent me the following interesting letter (under date of December 4th, 1904):—"The 'Ibis' (October No.) arrived last night, and I note your article on a new species of Owl from the Wairarapa.

"I believe that I have seen an Owl corresponding to the one you describe, but, having no gun at the time, and never seeing the bird again (although I hunted for it on several successive days), I never had the opportunity of recording its identity. This was at Waikohu, Te Karaka, in July, 1889. I disturbed the bird while leading my horse through tall, heavy, dense manuka, and am perfectly certain it was quite distinct from *Spiloglaux novæ-zealandiæ*."

NESTOR MERIDIONALIS.

(KAKA PARROT.)

Nestor meridionalis (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 150.**

THIS fine Parrot is far less plentiful than it formerly was, and this is the inevitable result of settlement and the consequent destruction of the forests. In districts where formerly it existed in thousands, its scream is never heard, and to many of the new settlers the bird is quite unknown. It is semi-nocturnal in its habits, and towards evening becomes very animated, flying over the tree-tops in an excited manner, generally in parties of three, uttering its harsh scream. This changes to a soft musical whistle as the birds alight; and in doing this they always select, as a post of observation, the withered top of some aged tree, always climbing to the highest limbs, their progression being by a succession of short hops.

At certain irregular periods, owing to some natural cause—possibly the failure of the ordinary food supply—the Kaka, leaving the woods, makes an irruption in large numbers into the settled districts. One such occasion is mentioned by an anonymous correspondent in the *Lyttelton Times* of June 10, 1903:—

About the year 1856 the Kaka invaded Otago in such large numbers as to become almost a plague. It is stated that not only in the bush, but in the open, on stacks, fences, or the ridges of houses, they could be even seen perched in rows as close as they could sit. They were seen sitting on a post-and-rail fence in the Tokomairiro Plains, in Otago, so close together that new arrivals had to fight for perching room, and if a person shot along the line of a fence he could knock over half a dozen at one shot. On the occasion of that migration, they caused a great deal of damage, especially to stacks and thatched houses. Settlers, thinking that the pest would increase year by year, seriously discussed what means should be taken to deal with the birds. The following year, however, hardly any Kakas were seen in the district, and the visitation has never been repeated.

As I have fully explained in the body of this work, there are many well-defined varieties of this characteristic species. I have enumerated and described (at pages 151-157 of vol. i.) no less than twelve of such varieties. One of these is the large Kaka of the South Island (*Nestor montanus*, Haast). The late Sir Julius von Haast, in sending me specimens, wrote, "Even judging from its habits alone, it is quite distinct from the common Kaka. It is never found in the *Fagus* forest, whilst the other species never goes above it into the subalpine vegetation." And Sir James Hector, writing to me of the same bird said, "I never met with it in the forests of the lowlands. It is more active in its habits and more hawk-like in its flight than the common *Nestor*. It often sweeps suddenly to the ground; and its cry differs from that of the common Kaka in being more shrill and wild." Reviewing these opinions, I said (*op. cit.*, p. 153), "No doubt some naturalists will be disposed to regard this larger race as a distinct bird, and for a considerable time my own inclinations were in that direction; but, looking to the extreme tendency to variation in this species, and to the difficulty of drawing a clear line between the larger and smaller races in consequence of the occasional intermediate or connecting forms, I feel that I am taking a safe course, concurrently with Dr. Finsch, in refusing, for the present at least, to separate these birds." That is how the matter rests now; but I am always open to conviction, and would welcome any further information on the subject. I have already a piece of evidence which, so far as it goes,

seems rather to strengthen the view of the species being distinct. It is this: the nestling of the North Island Kaka, as described by myself (*op. cit.*, p. 151), is "covered with soft white down, thinly distributed, and very short on the under-parts; abdomen entirely bare; bill whitish-grey, the upper mandible armed near the tip with a white horny point; cere pale-yellow; legs dull-cinereous." A nestling brought from the West Coast Sounds, and submitted to me as a skin, was covered all over with short slaty-grey down; cere bright yellow; bill greyish horn-colour; feet brown. These nestlings, therefore, were very different, and they belonged to the two races.

The difference of colouration under the wings in this mountain form is not a sexual distinction, as has been supposed. I shot two birds in company at Dusky Sound. One of them had this plumage very red and the other of a vivid yellow. On dissection they proved to be both of them females.

One of the finest specimens in my collection (a male bird) was caught alive near the Hollyford River, in the provincial district of Otago.

Professor Newton writes*: "Considering the abundance of Parrots, both as species and individuals, and their wide extent over the globe, it is surprising how little is known of their habits in a wild state. Even the species with which Englishmen and their descendants have been more in contact than any other has an almost unwritten history compared with that of many other birds; and, seeing how many are oppressed by and yielding to man's occupation of their ancient haunts, the extirpation of some is certain, and will probably be accomplished before several interesting and some disputed points in their economy have been decided. The experience of small islands only foreshadows what will happen in tracts of greater extent, though there more time is required to produce the same result; but, the result being inevitable, those who are favourably placed for observations should neglect no opportunities of making them ere it be too late." And, referring to our bird, he says: "The position of the genus *Nestor* in the order *Psittaci* must be regarded as uncertain. Garrod removed it altogether from the neighbourhood of the Lories, to which, indeed, the structure of its tongue, as previously shown by him, indicates only a superficial resemblance. Like so many other New Zealand forms, *Nestor* seems to be isolated, and may fairly be deemed to represent a separate family—*Nestoridae*—a view adopted by Count T. Salvadori ('Cat. B., Brit. Mus.,' xx., Introd., p. viii.), and fully justified by a cursory examination of its osteology, though this has hitherto been only imperfectly described and figured."

On the occasion of a visit to Stewart Island I obtained from a settler named Jenson a beautiful albino (or fawn-coloured) example of this species. On inquiring how he got it, he explained that, being out in the woods Kaka shooting, he wounded a bird, and, without looking closely at it, he held it down with his foot as a decoy. Its screams attracted a flock of them, and, in quick succession, he shot fifteen. Then he took up his wounded bird and found that it was something out of the common. The specimen was successfully skinned by Marklund, and I rewarded Jensen liberally for saving it. The general plumage is of a delicate fawn-colour, flushed more or less with orange, particularly on the upper wing-coverts, the feathers of the back having darker margins; ear-coverts orpiment-orange; the overlapping feathers on the cheeks dark vinous-red; nuchal collar conspicuous, and of red and orange intermixed; rump and upper tail-coverts, lining of wings, abdomen, and under tail-coverts arterial red; feathers on the breast and those along inner margin of wings with yellow and red crescents and dark margins; tail-feathers strongly flushed with reddish-orange. Bill and feet whitish-horn colour.

* 'Dictionary of Birds,' p. 691.

There is a very similar specimen, but with darker plumage, in the Otago Museum.

I have yet to add another abnormal variety, from Stewart Island, which has recently been added to my son's collection, and which I have had an opportunity of examining whilst these pages were passing through the press. The whole of the plumage is of a uniform pale slaty-grey, darker on the shoulders, and washed on the under surface with dull yellow; ear-coverts, nuchal collar, and the whole of the upper and lower tail-coverts dull orpiment-orange, of which colour there are also touches on the wing-coverts and thighs; feathers overlapping the lower mandible, throat and abdomen dull red; lining of wings vivid yellow, varied with obscure bands of red. Bill horn-coloured, darker on the culmen, and tinged throughout with green.

A specimen in Mr. A. Whaley's collection obtained at Rotorua, and now in the Tring Museum, differs from all examples I have seen in having the hind-neck greenish-orange with black centres to the feathers; the crown of the head, cheeks, and throat dusky-brown, the ear-coverts being dull orpiment-orange; breast dusky-brown, mixed with yellow; shoulders bright-scarlet, mixed with orpiment-orange, the centre of the feathers brown; rump and upper tail-coverts, brilliant scarlet, with clouded markings of brown; abdomen, flanks, and under tail-coverts duller scarlet, largely mixed with brown; upper surface of wings beautifully varied with olive-brown, scarlet, and orpiment-orange; lining of wings golden yellow towards the bend, pale scarlet below; quills golden-yellow and scarlet for half their extent, then dusky to the tips; tail-feathers pale scarlet for two-thirds of their length, then dark brown, with naked shaft-lines produced half an inch beyond the webs.

A very similar example was exhibited by Mr. Donne at a meeting of the Wellington Philosophical Society. This one, too, I understand, is now at Tring, a Museum quite celebrated for its New Zealand rarities.

Mr. Schroeder, in the Waima Valley, has, I understand, a red Kaka—a veritable case of erythrism—and Mr. McIntosh, of the National Bank, Blenheim, a white one; so has Wi Tutere, the Native chief at Otaraia, in the Wairarapa.

I described, under the provisional name of *Nestor superbus*, a gorgeously coloured specimen which came into my hands in 1864; Mr. Kirk recorded another "almost identical" specimen from Waikanae, in 1884, and a third from the Kaikoura Mountains in 1887. In recording the Waikanae example—which was, many years afterwards, presented by the Maori Chief, Wi Parata, to His Excellency, the Earl of Glasgow, on the occasion of his visiting the Native Settlement—Mr. Kirk observes: "It seems almost a pity that circumstances should have necessitated the reduction of this rightly-named superb bird to the rank of a variety."*

The late Dr. St. George Mivart, in treating of the hyoid bones of *Nestor meridionalis*, says ('Proc. Zool. Soc.', 1896, p. 238): "Thus the genus *Nestor* shows a very interesting, but hardly surprising, affinity to the Loridae as regards the structure of the hyoid. It has a *parahyal arch*, but that arch is remarkable for its slenderness, as the *entoglossals* are distinguished by their length and slenderness, and differ decidedly in form from those of *Eos*, *Lorius*, and *Trichoglossus*. Thus considered, the Nestors may be thought to represent the Lories in the New Zealand region."

The following very interesting account of the various modes of taking the Kaka, as told by a Maori, is given in Mr. Elsdon Best's 'Sketches from Tuhoealand':—

Of all birds taken for food the most highly prized was the Kaka (*Nestor meridionalis*). The Kaka was the 'rangatira' of birds and possessed considerable 'mana.' A flock of these birds is termed a 'Pokai Kaka' when flying, but when on the feeding grounds is called a 'Whakarua Kaka.' 'Whakarua' is a name applied to

* *Trans. N. Z. Inst.*, vol. xxii., p. 62.

a place where Kakas congregate to feed on the berries or leaves of forest trees. In other places all kinds of birds are seen on the same feeding ground, which is termed a 'hapua.' A flock of Koko, or Tui, is called a 'Wiri Koko' when flying, but a 'Hapua Koko' when settled on the feeding ground. A flock of Kereru (Pigeons) is known as a 'Tipapa Kereru.' A flock of Ducks is a 'Kawai Parera' when swimming, but a 'Pokai Parera' when flying. A flock of 'Tataeto' (Whiteheads) is a 'Ta Tataeto' among Tuhoe, and a 'Taki Tataeto' with Ngati Awa. The male bird of Kaka is termed Tata-apopo, and the female Tara-riki. The male is known by the head being larger than that of the female. These names obtain throughout the year. Sex names of the Koko or Tui (*Prosthemadera nova-zealandiae*) are somewhat complicated. During the period commencing with the flowering of the kotukutuku, or native fuchsia, and ending with the fruiting of the hinau, the male bird is known as Kopurehe, and the female as Kouwha. During the balance of the year the male bird is called Kokuri, and the female Kokotea. . . .

Each flock of Kaka has its own feeding grounds and its own leader. The different flocks do not interfere with each other's preserves; they are divided into tribes, as the Maori is. The leader or chief of a flock is known as the Tarariki or Tatariki (sometimes Tatarariki). It is invariably a small bird, and it appears to act as a guide and marshal. It flies or hovers about outside the flock, and leads the flock from one feeding ground (whakarua) to another. This leader is sometimes termed the Kaka Whakataka Pokai. In addition to the flock leaders there are the great Ariki. These are very rare birds. The term is applied to Kaka, which are red (instead of the ordinary brown), or white. The term Kaka Kura is also applied to them. The Ariki do not fly with the flock, but keep aloof, with a sole companion, an ordinary bird. The Tatariki leads the flock. It is said that only one Ariki occurs in each district, though that district would contain many flocks of Kaka. Others state that each district contained two Ariki, one red, the other white. The white or red Kaka were very scarce, hence, perhaps, were elevated to the dignity of supreme leadership. A white Hawk (Kahu Korako) was also a very rare bird, hence the term was applied to chiefs. An old proverb says: 'Me haere i roto i te kahu korako,' i.e., Travel under the wing of the White Hawk, or, always travel with a chief, and then you will get plenty of food. Another proverb says: 'He kuku ki te kainga, he Kaka ki te haere': a pigeon at home, a Kaka abroad. This is a jeering expression for those people who are dirty and wear shabby clothing at home, but dress well when they go a visiting. Again, 'Me te weka ka motu i te mahanga'—like a Woodhen escaped from the snare of the fowler—applied to one who escapes from a war party; don't think to catch him again. Again for the Kaka: 'He Kaka ki uta, he manga ki te moana': the Kaka on land, the Barracouta in the sea. Both are strong and voracious, and the Kaka rends wood as the Manga rends the net.

There are four different modes of taking the Kaka: (1) By the 'mutu'; (2) by spearing; (3) by the 'pae'; (4) catching by hand. The first three are the principal methods, the fourth can only be practised during the time of the 'whaturua' (mid-winter), when the Kakas are so fat that, when surprised feeding on the ground, they cannot rise in flight, but instantly run to a tree, up which they proceed to walk with that comical motion so well known to the bushman. At such a time they are caught by hand or knocked over with a stick.*

Mutu Kaka.—The 'mutu' is the principal appliance by which Kaka are taken. It is a perch and snare combined, formed of a forked branch or cut out of a larger piece of timber, and often ornamented with carving. It is in shape something like a capital T, the shank of the T being the perch and the lower and longer arm of the letter being lashed to the 'kokirikiri,' or pole, by which the mutu is elevated on the tree. There are, however, four different kinds of the 'mutu,' known as 'kapu,' 'huanui,' 'porae' and 'kira,' in each case the shank of the T (or perch) being set at a different angle. The 'kokirikiri' has a small piece of wood lashed across below, where the 'mutu' is made fast, in the form of a crutch. This crutch is to hook over the end of the 'hiwi' to suspend the 'kokirikiri' and 'mutu' by. The 'hiwi' is a pole permanently lashed to the branches of the tree, so that the end projects out from the tree top a short distance. The two kinds of 'hiwi' are known as 'hiwi-ariki' and 'pou-tauru.' A stage is built among the branches of the tree, on which the fowler sits, screened from view by fronds of the fern tree; this stage is called a 'papanui.' A tree on which birds are taken by the 'mutu' is termed a 'tutu'; a tree on which they are speared is a 'kaihua,' while a tree on which birds are snared is known as a 'taumatua.' As observed, all famous bird trees were named, and these names often appeared in song and proverb, as 'Ko Kaitara ki uta, ko Moutohora ki te moana'—'Kaitara on shore is as famous as Moutohora in the sea,' the first being a famous bird tree at Te-Wera-iti,

* In the month of May the Kakas are feeding on miro, which is one of their winter berries, and thus become excessively fat.

near Tara-pounamu, while the islet of Moutohora, off Whakatane, is a famous fishing ground. Also districts or valleys, famous for the numbers of birds taken, often had special sayings, such as 'Te Wera-iti umu tahunoa.'

The fowler going snaring Kaka takes with him his 'mutu' of different shapes, used according to the angles of the different 'hiwi,' also his decoy Kaka ('mokai' or 'timori'). The decoy is fastened to a stick by means of a cord attached to a human bone ring (moria) on the bird's leg. If the tree is not well branched for climbing, poles are lashed to the trunk to enable the fowler to ascend. This is termed a 'rou.' To ascend such a tree, when it is not desired to erect this 'rou,' the process known as 'tapeke' is resorted to. The feet are slipped through a looped cord, while another and longer one is put round the trunk and the ends thereof grasped by the climber, who slips the cord up the trunk of the tree as he 'swarms' up. Having reached the platform, the fowler proceeds to arrange the snares on his 'mutu,' and then takes the long stick (kokirikiri) to which the 'mutu' is attached, and thrusts it up through the head of the tree and hooks the crutch over the top of the stationary pole (hiwi), which is firmly bound to a branch with vines of the akatea. The top of the 'hiwi' is notched to prevent the crutch slipping off. There is no bait of flowers on the 'mutu,' but the perch must be long exposed to the weather after being made, in order to give it an old and weather-beaten appearance, otherwise the birds will not settle upon it. The cord attached to the snare passes through the upper arm of the 'mutu,' and trails down on to the platform. Having set all his 'mutu,' the fowler places close to him all the cords which lead from the different snares. He then proceeds to start his decoy in business, and if well trained, the 'mokai' will, by its cries, soon attract any Kaka there may be around. The best decoy for the 'mutu' process is a 'tatariki,' and the best for the 'pae' method is a 'tata-apopo.' Should the fowler not be possessed of a tame decoy Kaka, he will make use of a 'tirore.' The first bird caught is placed on a perch just over the snarer's platform, and tied by the leg to a branch, or a perch is made by lashing a piece of aka across two branches. The beak of this wild decoy is then broken, that the bird may not gnaw the cord round its leg. When our hunter returns home he does not take the 'tirore' with him, for it is *tapu*, on account of being suspended over his head. Neither does he kill it, but leaves it there to perish miserably.

The merry fowler waiteth with more or less patience, within his screen of fern leaves, until he sees a bird settle on one of his 'mutu.' He then grasps the particular cord which connects with that snare, and gives it a vigorous jerk. This drags the snare loop along the perch or horizontal shank of the inverted T, upon which the Kaka has settled, enclosing and dragging with it the feet of the bird, which are jammed up against the upper part of the 'mutu.' Keeping the cord drawn tight, the snarer makes it fast to the pole, and then takes the pole down and deftly catching the bird by the head, that he may avoid being bitten by its powerful beak, he places the top of its head in his mouth and kills it with one vigorous bite.

The 'kiri' is a 'mutu' used for very wild or timid birds. It is attached to a long 'hiwi,' which projects far out from the tree in a sloping position. At the villages the decoy Kaka were housed when not being used, each bird having its own 'rohe' or food basket. The cry of alarm uttered by a Kaka is termed 'tarakeha.' The noise of the birds quarrelling is 'taruhae.'

Spearing.—The spears used for taking birds were made of the white wood (ngako) of the tawa tree. They were about one inch in diameter and of a great length, the 'taoroa' being thirty or more feet, and the 'maiere' from sixteen to twenty. The barbed head or point was termed a 'makoi,' and was made of human bone. It was about twelve inches in length and worked down to about the size of a lead pencil, leaving several barbs. In later times iron came into use for 'makoi,' gridirons being specially sought after, the bars thereof being worked into capital 'makoi.' The 'makoi' was lashed firmly on to the 'matahere' or head of the spear, the butt end of the spear being known as 'hoehoe.' Being so long and slender, the spears had to be dragged behind one in travelling, and when not in use were hung up in a tree. For this purpose a short piece of wood was lashed across the spear near the head, for hanging it up. This crutch stick was termed 'pekapeka.' In climbing a tree, the fowler would thrust his spear up first and hang it to a branch. Having reached his platform or standing place, he would take off the 'pekapeka' and pull his spear up. Advantage was taken of branches to act as rests and guides for these long spears, the same being pushed very slowly until quite near the bird, and a quick thrust of the spear would then impale it on the 'makoi.' In rare cases the 'makoi' (or tara) was of greenstone.

Pae.—In this method of taking Kaka the fowler relied principally upon his decoy. Having selected a suitable place on the feeding ground, he places a light pole in a slanting position on two adjacent trees, and from this another such pole slanting downwards, its end resting upon the ground. At the base of this slanting pole the decoy Kaka is secured, and close to the pole is the rude screen of branches or fronds of the

fern tree in which the fowler sits concealed. No snare is used, the fowler having in his hand a rod some five feet in length, or more. This rod is termed a 'hauhau,' and is used to strike the birds with as they descend the pole. Should the Kaka prove wary and not descend to the call of the decoy, the decoy is given a bone to gnaw, which will soon attract the birds, for they think that the decoy has got something good to eat. Then the Kaka will be seen to slowly descend the sloping pole, turning from side to side as he walks down, and uttering a harsh cry. As a bird arrives in front of the concealed fowler, he strikes it down with the 'hauhau.'

In olden times, when birds were very numerous, many decoy Kaka were kept at each Native village. A shed called a 'whata-kaka' was built for them. This was a roof built about six feet from the ground, and under which was a long slab, hollowed in the centre and known as a 'waka.' At intervals, holes were made in this 'waka,' in which were inserted the ends of the 'hoka,' or slender rods, to which each Kaka was tied, with a cord long enough to allow the bird to walk from the 'waka' out along the 'hoka.' The food for the decoys was either placed in the 'waka' or in a small open-work flax bag, called a 'rohe.'

There were many signs and omens in regard to hunting and bird-taking in the days of yore. To dream that one sees the spirit of a person is a 'moe-papa,' or unlucky dream, for hunters. To dream that one is embracing a good-looking woman is a 'moe-tamahine' and a good sign. Should we go birding and I secure only poor birds, while you obtain fat ones, my bad luck is termed a 'tahakura,' which is a form of 'puhore' (omen of non-success.)

NESTOR SEPTENTRIONALIS.—Under this name Dr. Lorenz proposes to distinguish the North Island Kaka from that inhabiting the South Island. He remarks ('Ann. Hofm.,' Wien, xvii., p. 318) that for a long time past the birds of both Islands have been classed together as one species under the name of *Nestor meridionalis*. He points out that Selby's plate in 'The Naturalist's Library,' vol. xii., plainly represents the North Island bird, whereas the description exactly fits the bird from the South Island; also that Count Salvadori's diagnostic characters for *N. meridionalis* in the 'Catalogue of Birds' (B. M., xx., p. 7) are more applicable to *N. septentrionalis*.

This raises the whole question of whether we are really justified in referring all the known varieties of which I have given a very minute description (vol. i., pp. 151-7) to one and the same species. Although at one time I was myself in favour of a division, I have been constrained to lump all these forms together on account of the extreme tendency to variation in this species. The North Island bird is, as a rule, readily distinguishable from the hoary Nestor of the South; but in the Nelson district, and on the West Coast of the South Island, Kakas are to be obtained hardly distinguishable in size and colour from those of the North Island. It seems to me that if two distinct species are to be recognised, it will not be necessary to invent a new name, but to revive my *Nestor occidentalis* ('Ibis,' 1869), which fits in very well with Dr. Lorenz's diagnosis. But I long ago consented to sink this and to treat it as a mere synonym of the typical *Nestor meridionalis*.

After setting out a full description of the so-called new species, Dr. Lorenz appends a detailed description of five specimens in the Reischek collection, at Vienna, showing conspicuous individual differences and tending to establish what we know already of the remarkable variability of this species.

NESTOR NOTABILIS

(KEA PARROT.)

Nestor notabilis (Gould), Buller, *Birds of New Zealand*, vol. i., p. 166.

THE destructiveness of the Kea to the flocks of sheep has been fully treated of (2nd. ed., i., pp. 171-4); but this nuisance has been much abated by the practical extermination in late years of that bird in the sheep country. To show that the evil in past times has not been overstated, the following instances may be quoted on the authority of Mr. Potts, who was a very careful observer:—

On one station in the Matatapu the owner resolved to begin cross-breeding. With that view twenty Lincoln rams were purchased; within a month nineteen were killed by parrots. On another run, during the month of April 310 strong young wethers were got in off the back-country. As it was late in the season the owner resolved not to shear them, but to put them on a good low-lying space. In September they were looked at, and they were found lying in dozens with holes in their backs, untouched in every other part; of the original number, 105 only remained alive. On one outlying portion of a lake-run the birds were so destructive that, although there were 30,000 acres of good grass land, the occupiers decided not to place stock upon it; the losses had been found so great that it was deemed better to abandon the country.

Young.—The bird of the first year has duller plumage than the adult male, and there is no metallic glint on the upper surface. Bill blackish brown, yellow towards the base of lower mandible. I examined a young bird in captivity that had been taken out of a nest of five. It was extremely tame and confiding, and I noticed that all its movements were very hawk-like even at this age.

The photograph on the next page, for which I am indebted to Mr. Malcolm Ross, represents a pair of inquisitive Keas visiting the yard of an out-station on a tour of inspection. The locality is near the Tasman Glacier, at an elevation of 3,000 feet above sea-level.

In vol. ix. of the 'Transactions N. T. Institute' I recorded some curious instances of deformity in the bill of *Nestor meridionalis*. I received from Dunedin a specimen of *Nestor notabilis* in which the upper mandible presents a very strange malformation, of which I gave a pencil sketch (pl. xiv., fig. 1).

Owing to the crusade urged against this Parrot for many years its numbers have been perceptibly thinned; but it may always be found in its mountain fastnesses.

Mr. Roberts, the head of the Government survey staff at Hokitika, gave me some interesting particulars about the Kea, to which bird, when in the field, he was in the habit of paying special attention. On one occasion in camp, after giving a tame Kea a good breakfast of raw meat, he offered the bird a Wood-robin which he had just knocked over. The Kea deliberately picked the feathers off the head of the dead bird, and sucked out the brains, then tore off all the body-feathers and swallowed it whole. He states that, so far as his experience goes, the Kea is never found to the north of Lake Brunner. He adds that, when he was engaged on the back-country survey, the Keas were so tame at first that more than once they have picked at his boot laces and tugged at his trousers, in their inquisitive way, to see what they were made of. But after once being pelted at with a stone, or treated rudely, they developed extreme caution and generally kept out of the way: a pretty good indication of natural intelligence!

About seventeen years ago a beautiful yellow Kea was obtained in the Wanaka country

in the far South. At that time there was a Government bonus of two shillings a head for Keas, as the bird had been proving very destructive to the sheep. Every man on the station, as a rule, carried with him a fowling-piece on his rounds and came home at night with a bagful of beaks, thus adding not inconsiderably to his weekly wages. Thousands of pounds were paid in the course of the year, by way of bonus, in the Wanaka district alone. The last payment made by my informant was £500 in one lump sum. It may be gathered from this what the destruction of Keas was at that time. In consequence of this persistent slaughter they rapidly grew scarcer, till at length there were so few to be seen that the men at work on the run would not encumber themselves with a gun. When, however, the killing fever was at its height, one of the men, on delivering his tale of



KEAS IN CAMP.

beaks, said: "I shot to-day the queerest Kea I ever saw—all yellow!" He added that there was another similar one which he could not get. Finding that the man, after cutting off the beak, had thrown the body aside, the manager sent out to search for the bird, but was unsuccessful, some vagrant dog or hawk having carried it away. In a short time, however, the other was shot and was carefully preserved by the manager, who sent it to Mr. C. Turnbull, of Dunedin.

This beautiful specimen has since come into my son's possession. The whole of the body-plumage is vivid canary-yellow, deepening on the neck, sides of the body and rump into a rich orange-yellow; most of the scapulars and the quills are of the normal colour, except the first primary in each wing which is yellowish-white; tail-feathers canary yellow, excepting two of the outer lateral ones, which are partly normal; lining of wings delicate orange. Here and there, especially on the head, there is a feather or two of the normal colour.



BANDED KAKA, AND VARIETY.
NESTOR ESSLINGI *meridionalis*
(ONE-HALF NATURAL SIZE.)

p. 179

To be exact, this abnormal example was obtained at the head of the Shotover river, on the western side of the Motutapu.

Lord Onslow, some years ago, presented a pair of these birds to the Zoological Society, and, since then, others have been deposited in the Gardens, from time to time, but they have seldom survived long. I attribute this to their being consigned to the Parrot-house, with its quasi-tropical heat, to which they are, of course, unaccustomed. In the Antwerp Zoological Gardens, under the admirable management of Mons. Michel Lhoest, I saw, on my last visit there, a very healthy and vigorous example of this species; but the bird had been placed in a capacious cage in a cool house, with not too much light; and, under these conditions, it will probably live many years, to justify its name and to interest the citizens of Antwerp.

ORDER PSITTACIFORMES.]

[FAMILY NESTORIDÆ.

NESTOR ESSLINGI.

(YELLOW-BELTED KAKA.)

***Nestor meridionalis*, var. *esslingii* (Souancé); Buller, *Birds of New Zealand*, vol. i., p. 152.**

CONSISTENTLY with the views put forward on pages 2 and 3, I can no longer refuse to accord specific rank to *Nestor esslingi*. It was originally named by De Souancé, and was figured and described by Mr. Gould in the supplement to his superb folio work on 'The Birds of Australia,' and the type specimen is still preserved in the National Collection. I treated it (vol. i., p. 152) as a variety of the highly variable *Nestor meridionalis*. Count Salvadori, however, who is an acknowledged authority on Parrots generally, admitted it as a species in the 'Catalogue of Birds' at the British Museum (vol. xx., p. 9.) without any expression of doubt.

Since the publication of my work I have had the opportunity of examining no less than six examples, all obtained in the Marlborough district. My hesitancy about recognizing the species as distinct was strengthened by noticing in one of these specimens an appearance of albinism on the lower mandible, and similar traces on the toes of another. In all of them, however, the broad transverse band of yellow was conspicuous, the cheeks highly coloured, and the bill narrow or more attenuated in form than in the common Nestor, approaching more nearly to that character in *Nestor notabilis*. In this respect, as well as in its general coloration, it seems to occupy a midway position between *N. meridionalis* and *N. productus* of Norfolk and Philip Islands, specimens of which are very rare.*

* In a letter to the author, dated March 9th, 1901, Professor Newton says: "As to *Nestor productus*, I know of only six specimens in this country, and not one of them is ever likely to come into the market: three in the British Museum, one at Liverpool (formerly Tristram's and in very poor condition), one at Norwich (obtained by Owen Stanley), and our own, which Strickland bought at Edinburgh in 1852, at a time when the bird was not known to be extinct; indeed, somewhere about 1850 or 1851 there was a live one in London, which Gould saw. Of course a specimen might turn up at any time, but I have looked through many local museums without finding one."

Gould's account of *Nestor esslingii*, De Souancé, was as follows:—

"A single specimen only of this magnificent Parrot has come under my notice; and this example is perhaps the only one that has yet been sent to Europe. It formerly formed part of the collection of the Prince d'Essling, of Paris, but now graces the National Museum of Great Britain. It is in a most perfect state of preservation, and is, without exception, one of the finest species not only of its genus, but of the great family of Parrots. The native country of this bird is supposed to be New Zealand; but I, as well as M. de Souancé, have failed to learn anything definite on this point. In size it even exceeds the great Kaka (*Nestor meridionalis*), which it resembles in the form of the beak, while in its general colouring it closely assimilates to the *Nestor productus*; in some features of its plumage, however, it differs from both. In both those species the tail-feathers are strongly toothed on the under surface with red; and in the *N. esslingii* no such marks occur, the toothed on the inner webs of the primaries is not so clear and well defined, and the light-coloured interspaces are much freckled with brown."

Dr. Finsch, on the other hand, states in his 'Monograph of Parrots' that *Nestor esslingii* is in size and general colour the same as *Nestor meridionalis*, but "has the breast ash-grey with brown terminal margins, and a broad yellowish-white transverse band straight across the belly." He quotes De Souancé to the effect that the red marks on the inner vane of the quills and tail-feathers are precisely as in *Nestor meridionalis*.*

As far back as 1870 I expressed my belief that it was only an accidental variety, albeit a very beautiful one, of *Nestor meridionalis*.

When I had the pleasure, many years afterwards, of exhibiting the bird to the Wellington Philosophical Society, I said: "The specimen which I have the pleasure of exhibiting to-night is, so far as I can remember, almost exactly similar to the type of *Nestor esslingii*. There is a very slight indication of the toothed markings on the under-surface of the tail-feathers; but, as I have already shown, the authorities differ as to their presence or entire absence in the original specimen. The curious part of the story, however, is that the bird now exhibited is one of three, all marked alike, recently obtained in the same locality (District of Marlborough)—all three of which I have had an opportunity of examining. One would have felt much inclined to rehabilitate *Nestor esslingii* as a species but for the fatal circumstance that one of them has the lower mandible on one side yellowish-white, betraying the latent tendency in the bird to albinism. I still feel satisfied, therefore, that this handsome bird is only a variety of *Nestor meridionalis*, the most variable of all our indigenous Parrots."

In exhibiting the fourth example received from Collingwood, to the Wellington Philosophical Society, I made the following remarks upon it: "It is a very handsome bird. The bill is finer or more produced than in ordinary specimens of *Nestor* and the shafts of the tail-feathers project half-an-inch beyond the webs. The colours are very brilliant; the over-lapping

* Count Salvadori thus describes the type in the Museum collection:—

'Very much like *N. meridionalis*, from which it differs principally in having a broad yellowish-white band between the grey upper breast and the dull red abdomen; besides, the ear-coverts behind are of a bright golden yellow, the cheeks below bright red, and the tail-feathers towards the base of the inner web do not show the spots, which more or less are always present in *N. meridionalis*. Total length 18 inches, wing 11·8, tail 6·5, bill 2·1, tarsus 1·2. *Hab.* unknown.

This bird is intermediate between *N. meridionalis* and *N. productus*; it resembles the first in the dimensions and in the upper parts, and the second in the underparts, especially on account of the broad yellowish-white band across the breast. Although considered by Sir W. Buller as an individual variety of *N. meridionalis*, I feel inclined to agree with Gould and Finsch in regarding it as a distinct species.' ('Cat. Birds, Brit. Mus.,' xx., p. 9.)

cheek-feathers are vivid wine-red, and the ear-coverts are bright orpiment-orange. The nuchal collar of red is continued all round the lower neck, the upper breast-feathers having arterial red and orange borders; on the feathers immediately below, the red disappears and the orange is more spread; the transverse belly-band, which is of a brilliant canary-yellow, is 2.5 in. wide; the lower abdominal feathers, with the flanks and under tail-coverts, are, like the rump and upper tail-coverts, banded with bright arterial red. On the crown and hind-head the grey is shaded with dusky, and the feathers have a greenish tinge; many of the small wing-coverts have brilliant tips of arterial red and yellow; the toothed markings on the under-surface of the quills are very conspicuous and of a pale-red colour; the tail-feathers are flushed underneath with red for two-thirds of their length, then they are dark-brown with a terminal band of obscure-red, beyond which the black shafts are produced in extremely fine points. The plumage of the upper-surface is greyish-brown, tinged with green, and with broad black margins to the feathers. The colours are distinct and pronounced, and, this being the fourth example since Gould's *Nestor esslingii* was described, one is tempted to recognise a distinct species, the yellow sides on the lower mandible showing an approach to *Nestor notabilis*. . . . It gave the following measurements: Extreme length, 21 in.; wing from flexure, 12 in.; tail (to end of produced shafts), 8 in.; bill, along the ridge, 2.25 in.; along the edge of lower mandible, 1.50 in.; tarsus, 1.25 in.; longer fore-toe and claw, 2.75 in.; longer hind-toe and claw, 2.25 in."

Hearing that the sixth specimen of this interesting species had been procured at Collingwood, I instructed my agent to buy it, but he reported that the young man who had shot the bird had presented it to his sister, who could not be induced to part with it. I remembered Canon Tristram's story in the 'Ibis' of how, under somewhat similar circumstances, he had made use of a showy Paris hat with excellent effect, and I attempted a similar exchange, but without success. However, in the end, the Fates favoured us; for there was a death in the young lady's family, and the exigencies of the case appealing to my agent, he induced the owner to accept a mourning dress in lieu of the bird, illustrating the old saying that "'Tis an ill wind that brings no one any good." This is the specimen I have figured, and it is now in my son's collection.

Later on, I had again to refer to this bird, which I did in the following terms: "It will be remembered that at a former meeting I exhibited a specimen of the Yellow-belted Kaka named by De Souancé *Nestor esslingii*, in honour of the Prince d'Essling. I have now to exhibit another example of this peculiarly-coloured form, from the same locality. Seeing that no less than six have been obtained at different times, it may seem unreasonable not to accord the bird full recognition as a distinct species. But the tendency to albinism in some of the claws in the beautiful specimen now exhibited makes me still suspicious, and, for the present at any rate, it will, I think, be safer to rank it as a well-marked variety. I may mention, however, that in this bird the bill seems finer than in ordinary examples of *Nestor meridionalis*, coming nearer in this respect, as well as in the yellow colour of the under-mandible, to the very distinct *Nestor notabilis*."

Mr. James Dall, of Collingwood, through whom I obtained several of the above specimens, writes: "I am sure the form is permanent, as I remember having them many years ago."

As stated in my account of the genus, it is not unusual to meet with more or less perfect lutinoes (proposed at one time to be distinguished as *Nestor superbus*). The last specimen of this variety added to my son's collection (from the Nelson provincial district) is so lovely an object that I have given a figure of the bird on the same plate as its near congener, *Nestor esslingii*.

The following is a description of this gorgeous bird, which my son was fortunate enough to obtain from Mr. Henry Travers for the moderate price of ten guineas. I mention this circumstance because there is an impression that Mr. Travers charges extravagant prices for

New Zealand birds, whereas, according to the ruling prices, both here and in the Colony, he could fairly have demanded £25, or even more, for this unique specimen. He frankly admitted that it was the finest example that had passed through his hands, and he had been collecting for many years. General plumage canary-yellow, with brighter washes of yellow on the breast, shoulders and upper-surface of wings; ear-coverts orpiment-orange; feathers overlapping under mandible wine-red; broad nuchal collar orpiment-orange and red intermixed; lower part of back, rump, and upper tail-coverts bright scarlet; under-surface of wings, sides of the body, abdomen, flanks, and under tail-coverts, scarlet, mixed more or less with orpiment-orange; quills and tail-feathers greyish-white, the former toothed on their inner webs with yellow and crimson, the latter with red.

I have examined the example of the so-called *Nestor norfolcensis* in the Liverpool Museum, and I cannot separate it from *Nestor productus* of Philip Island, the abnormal character of the bill, which is the main distinguishing feature, having no value in my eyes, for I know how variable this organ is in members of this group. The case must, therefore, in my opinion, stand as *Nestor norfolcensis* = *N. productus*.

I am glad to be able to quote Professor Newton's opinion on this point, in a letter to myself: "I cannot say I ever believed in the validity of *Nestor norfolcensis*, for I know well how Parrots' (and some other birds') beaks get overgrown; but really there is no evidence whatever to prove that the Liverpool specimen (formerly Tristram's) came from Norfolk Island. It is quite likely to have done so, since we may presume that of old time there were more Nestors on the bigger than on the smaller island, though they were extirpated in the former earlier than in the latter, and probably very few specimens were ever procured from Norfolk Island, and that a very long while ago. I remember that Tristram's specimen had the look of being very ancient." *

* Canon Tristram writes ('Ibis,' 1892, vol. iv., 6th series, p. 557):—"On studying Count Salvadori's description of *Nestor productus* and *N. norfolcensis* in the 'British Museum Catalogue of Birds' (vol. xx., pp. 9 and 10), I was surprised to find that a mounted specimen which has been for twenty years in my possession corresponds with the description of *N. norfolcensis*, and not with that of *N. productus*. I had never thought before of comparing my bird with any other specimen. Unfortunately, the most striking peculiarity of the Norfolk Island Nestor, that sulcated ridge on the upper mandible, is wanting in my specimen, for the sheath had long been lost before it came into my possession, but the core shows that the bill must have been more massive than in *N. productus*. The lower mandible is perfect. I have now examined the specimens of the Philip Island Parrot in the British Museum, and in the Norwich, Cambridge, and Derby (Liverpool) Museums. They all agree together in the points of distinction given by Latham and Pelzeln as separating *N. productus* from the Norfolk Island species, while my specimen has all the characters specified as belonging to *N. norfolcensis*. The tail is of a uniform brown, without the least trace of bars, the tail-feathers towards the base of their inner webs being pale red, but not toothed with red, as in the other species. The axillaries and under wing-coverts are white without a shade of yellow, and the inner webs of the wing-primaries are toothed with white. These last particulars are not given by Latham, but are mentioned by Pelzeln, and the specimen agrees with the diagnosis of both authors. In measurements it seems slightly smaller than its congener." He adds: "It is possible that my specimen may have been the example mentioned as having been in the possession of Governor Hunter. . . . It is to be feared that it is, too probably, the last relic of an extinct race."



ANTIPODES-ISLAND PARRAKEET.

399 ^{Buller's} CYANORHAMPHUS UNICOLOR.

(THREE-FIFTHS NATURAL SIZE.)

p. 210

CYANORHAMPHUS UNICOLOR.*

(ANTIPODES-ISLAND PARRAKEET.)

Platycercus unicolor (Vigors), **Buller, Birds of New Zealand, vol. i., p. 148.**

I HAVE mentioned in 'The Birds of New Zealand' (vol. i., pp. 148, 149) the interesting circumstance of the re-discovery of this lost species on Antipodes Island by Captain Fairchild, half a century after the type specimen had been placed on the shelves of the British Museum. On a later visit of the 'Hinemoa' to the same island, the crew obtained a number of them, which were brought to New Zealand alive. They bear confinement well, and soon become tame and tractable. The male bird has a conspicuously larger bill than the female. The irides are cherry-brown in colour, and the feet are dull-grey.

On Antipodes Island these birds were found frequenting the grass tussocks, and were easily run down and caught by the hand or by means of a neck-snare.

Sir James Hector records his belief (*l.c.*, p. 149) that this Parrakeet resembles a Kakapo, being "a ground Parrakeet, which flies feebly, does not care to perch, climbs with its beak and feet, and walks in the same waddle-and-intoed fashion as the Kakapo;" and a scientific correspondent in England, to whom I sent a pair of live ones, writes me that it seems "far more like a *Conurus* than a *Platycercus*." But, although I have made a careful comparison between the bones of the two species, I cannot find that the sternum of *Cyanorhamphus unicolor* differs in any respect from that of *C. novæ-zealandiæ*, except as to size.

Antipodes Island—a mere rock in the ocean, 640 miles from Port Chalmers in a southerly direction—is the only known spot on the face of our globe inhabited by this Parrakeet. One can understand how, under the laws of evolution, isolation for perhaps many centuries has enabled this bird to develop its specific characters of form and colour. But how about *Cyanorhamphus erythrotis*, living alongside it in the same island-home, and so slightly differentiated from *C. novæ-zealandiæ* that some ornithologists regard them as one and the same species? The only explanation I can offer is in a theory of colonisation at a later period of time, but sufficiently remote to account for a certain amount of divergence from the parent stock. The differences consist in an appreciably larger size, with paler irides, and a colder shade of green throughout the plumage, in having the red patch on the vertex much reduced in extent and mixed with the green, the line of red from the bill to the eye narrower, and the extension beyond reduced to a mere point. These are just such changes and modifications as would naturally mark the gradual transition from *Cyanorhamphus novæ-zealandiæ* to *C. unicolor*.

Owing to the uniform colour of the plumage, and the delicate shades through which the green passes, being lightest and brightest on the forehead, *Cyanorhamphus unicolor* is, to my mind, the prettiest of the whole group. I remember being struck many years ago with

* Dr. Sharpe has included this species in his 'Handlist,' under the name of *Pezoporus fairchildi*, Hector. His acquaintance with the literature of the subject ought surely to have told him that Sir James Hector applied this name to the form that appears on a former leaf of the 'Handlist' as *Cyanorhamphus unicolor*. (Cf. 'Trans. N. Z. Inst.,' vol. vi., p. 121.) I confess, however, that the learned author's treatment of the subject, without a hint that the bird described by him was already known as *C. unicolor*, was calculated to mislead anyone.

the portrait of the then unique specimen in the British Museum, in Lear's illustrated folio monograph of Parrots, as being one of the handsomest plates in the book.

The species appears to have no note but a low chatter, except when fighting, when this is prolonged into a little scream like the cry of a Tern (*Sterna frontalis*).

My captive birds seemed perfectly happy, although caged when adult. They partook freely of maize and oats, also of apples, grapes, figs, and, indeed, ripe fruit of any kind. They could bite severely, as I soon learned to my cost.

Many more specimens of this interesting Parrakeet have been brought from time to time by the Government steamer from Antipodes Island. Although captured as adult birds they take readily to confinement, and do not fret, as most other birds do, at being caged. I have noticed that this species has a habit of resting at night in an upright position, holding on to the wires of its cage by both bill and feet.

I am now able to give the full measurements of the two sexes, taken from specimens in the flesh.

Male.—Length, 14 in.; extent of wings, 19 in.; wing from flexure, 6 in.; tail, 6.50 in.; bill, along the ridge 1.1 in., along the edge of the lower mandible 0.65 in.; tarsus, 1 in.; longer fore-toe and claw, 1.5 in.; longer hind-toe and claw, 1.3 in.

Female.—Length, 12.75 in.; extent of wings, 17.5 in.; wing from flexure, 5.75 in.; tail, 6 in.; bill, along the ridge 0.9 in., along the edge of lower mandible 0.55 in.; tarsus, 0.8 in.; longer fore-toe and claw, 1.25 in.; longer hind-toe and claw, 1.2 in.

I obtained possession of an egg of this species which was laid by a captive bird on board the 'Hinemoa' on one of her voyages from the islands. It is perfectly white, with a smooth surface, and almost spherical in shape, measuring 1 in. in length by 0.9 in. in extreme width.

In vol. ii. of 'Novitates Zoologicae,' p. 66, there is a curious note by the Hon. Charles Rothschild, under the heading of 'Casual Notes on Fleas.' He says: "I have to record a fine *male* specimen of *Pulex kerguelensis*, Taschb., taken from an example of the Parrakeet, *Cyanorhamphus unicolor* (Vig.) from Antipodes Island. The species was originally described by Dr. Taschenberg (*Die Flöhe*, p. 67, pl. ii., fig. 12) as having been found by Mr. Eaton upon a Petrel, *Pelecanoides urinatrix* (Gmel.), on Kerguelen Island. Notwithstanding the immense distance separating these two islands, this additional record of *P. kerguelensis*, when analysed, is not strange, for the Petrel is indigenous to most of the islands in or near the Antarctic Ocean, and the Parrakeet lives in holes in the ground in the same way as the Petrel, and probably entered a hole previously tenanted by a Petrel."

The manner in which this Parrakeet is strictly confined to Antipodes Island is very curious. There is a similar instance in the Fiji group, where a beautiful form (*Pyrrhulopsis tabuensis* var. *atrigrularis*) is found on a small wooded island, called Gau, and nowhere else. During my last visit to Fiji I was fortunate enough to obtain from the natives a pair of young ones just taken from the nest, which I brought with me to New Zealand and succeeded in rearing.*

* PYRRHULOPSIS TABUENSIS. One of the birds I brought from Levuka in October, 1897 (a male), died on July 9th, 1898. It measured as follows:—Length, 21.25 in.; extent of wings, 29 in.; wing from flexure, 9.75 in.; tail, 9.5 in.; culmen, 1.5 in.; bill from gape, 1 in.; tarsus, 1 in.

It is a really beautiful bird and may be described as follows:—

Young ♂. Head, neck all round, and the whole of the under surface rich arterial red, darker on the head, becoming almost black on the forehead and lores; upper surface of body and wings rich verditer-green, with a metallic sheen and changing in different lights; the arterial red of the neck is separated from the green by a low nuchal collar of indigo-blue; quills and tail feathers brilliant indigo or mazarine-blue, the webs of the

CYANORHAMPHUS NOVÆ-ZEALANDIÆ.

(RED-FRONTED PARRAKEET.)

Platycercus novæ-zealandiæ (Sparrm.), Buller, *Birds of New Zealand*, vol. i., p. 137.

THIS is one of the most variable of our species. No less than seven varieties, from different islands, have been described and named by naturalists as distinct species. That from the Auckland Islands is distinguished by its diminutive size, being scarcely larger than my *Platycercus rowleyi*, from the South Island. Curiously enough, the form which comes from Antipodes Island is even larger than ordinary-sized examples of this species in New Zealand. It differs, too, from the latter in the general hue of the plumage, which has a larger admixture of yellow, and in having the frontal spot, which is deep-crimson in the New Zealand bird, much reduced in extent, and more or less varied with yellow. It is very singular, also, that this species should be found inhabiting a small area like Antipodes Island, which forms the restricted habitat of the perfectly distinct *Cyanorhamphus unicolor*.

To the many recorded varieties of this species I have now to add another in a remarkable specimen received by me from Nelson. The plumage of the upper surface is intermixed with bright canary-yellow, this colour predominating on the wing-coverts, back, rump, and upper tail-coverts. The outer tail-coverts are varied with yellow, and there are scattered feathers of the same colour on the cheeks, throat, and fore-neck.

Another, which I have had an opportunity of examining, differs from ordinary specimens in having the first bastard quill in the right wing yellowish-white, with a blue-black tip, and the corresponding feather in the left wing entirely yellowish-white; it likewise has the innermost secondary lemon-yellow, with touches of the same colour among the wing-coverts,

secondaries and of the medial tail-feathers washed with metallic verditer-green; the green is very bright on the rump, and some of the upper tail-coverts have a sub-terminal bar of arterial red; the inner under wing-coverts are similarly marked, the outer ones changing insensibly from verditer-green to rich metallic blue; under surface of quills and tail-feathers black. The feathers of the breast, sides of the body, and flanks have their basal portion bright verditer-green, presenting a very rich appearance when the plumage is disturbed. Irides golden-yellow; bill bluish-grey in its basal portion, then black; feet blackish-grey with a shiny surface; claws black.

The other bird I succeeded in bringing to England with me, and it lived in the Zoological Gardens for about a year, and then died without any apparent cause.

I take the following note from my diary: Suva, Wednesday, June 28th. Spent a very pleasant day with Sir Henry Berkeley at Tamuvea. He has a house charmingly situated on the summit of a hill, with extensive and beautiful views of the heavily wooded volcanic island and its endless miles of surrounding coral reefs. His Honour informs me that the island is about 100 miles long by about the same extent across. On this side it is wooded; on the other side of the mountain-backbone, the whole character of the country changes. It is open and grassy. Cattle do well there, but sheep deteriorate and their fleeces get hairy.

At Sir Henry's I saw a beautiful Fijian Parrot, *Pyrrhulopsis tabuensis*. It is of a brighter red than the one I possess, with a broader band of blue on the nape. On the door of its cage being opened it darted out and made in a direct line for the top of a wild acacia at the further end of the garden, spreading its beautiful blue tail to the full extent as it disappeared amongst the thick foliage. Half an hour later it had returned unperceived to the drawing-room, where we found it busily engaged tearing to pieces a bouquet of tropical flowers. I offered it my hand, and it immediately perched upon it and allowed itself to be caressed and showed every willingness to re-enter its cage. Such a Parrot is, to my mind, an ideal pet. My bird, which is the rare dark form from the Island of Gau, has several times escaped from the aviary, but has always come back to it.

and on the back and rump; whilst the primaries on the left wing are yellowish-white at their tips.

A specimen which I have received from Auckland has the back, rump, and upper surface of wings irregularly marked with yellow, and the sides of the face, foreneck and breast washed with yellow; tail entirely yellow, slightly clouded with grey. In other respects the plumage is normal; but the bird is somewhat smaller than ordinary specimens.

A specimen received from Dunedin has the whole of the abdomen washed with lemon-yellow; also the vertex along the edges of the crimson cap. A specimen which I shot at Eketahuna, in the Forty-mile Bush, has the frontal and uropygial spots delicately edged with yellow, and the tail-feathers tipped with blue.

At Tapuaeharuru, on the Taupo Lake, I saw a fine caged example of this species in which the crown and sides of the head had a wash of yellow over the green.

There is a remarkable example of this widely-spread species in the Southland Museum. The curator (Mr. Fraser) very courteously unscrewed the face of the glass case containing it, to enable me to make a closer inspection. Forehead and front part of vertex, as well as the ear-coverts, dark-crimson; the whole of the body-plumage bright yellow, varied more or less on the upper surface, and washed on the neck with green; bastard quills and outer webs of first four primaries, in their basal portion, blue; the rest of the primaries brownish-grey, clouded with darker grey on their inner webs; the fifth primary in each wing yellowish-white, the outer vane changing to yellowish green towards the base; the two middle tail-feathers dark-green, edged and tipped with yellow, and the lateral ones varied and clouded with green; the under tail-coverts washed with green. Bill normal; feet pale brown. This specimen is marked "Female," and there is a note attached stating that it was obtained in December, 1876.

Specimens brought from Macaulay Island, in the Kermadec group, do not differ in any respect from the New Zealand bird. An example of the latter has come into my possession in which the entire abdomen is greenish-yellow, whilst there is a narrow halo of the same colour around the frontal spot of crimson.

I have examined a caged Parrakeet brought by Mr. Ernest Bell from Curtis Island, situated a few miles from Sunday Island, in the Kermadec Group, where also this Parrakeet was abundant till the introduction of the domestic cat, which soon killed it off. I can detect no difference from the New Zealand bird. It is of decidedly small size (probably a female), and there is a blue tinge on the tail-feathers; but I take these to be merely individual peculiarities. Macaulay Island, where a distinct species closely allied to *C. novæ-zealandiæ* is said to exist, lies about a degree distant from Sunday Island.

Mr. Alexander Macdonald, of the Awahuri, mentioned to me a curious incident which had come under his own observation. His young people had obtained a nest of young Parrakeets, and succeeded in rearing them. When adult, two of the birds mated and became quite inseparable, always occupying the same perch, and cuddling up to each other in the most affectionate manner. One day the male bird made his escape from the cage, and in being recaptured had his tail pulled out. Thus dismantled, the fugitive went back to his cage in a very sorry plight. The female bird immediately discarded her disfigured mate, rejected all his advances, and before long paired with one of the other birds, whose caudal appendage was the very pink of perfection. But the curious part of the story has yet to come. In course of time the divorced lover had renewed his tail, and then the inconsistent lady forsook her second mate and restored to favour her "first love" in all the glory of his long, new tail. Not a bad proof, I think, that even birds are not insensible to the charms of personal appearance. It may be added that the last-deserted mate forthwith moped, refused to eat food, and died of a broken heart.

It would appear that this species breeds twice in the year. A young bushman at Hawera found, in the month of May, a nest containing eight young ones, which he took and sold for 10s. each, the village settlers being very partial to these docile and imitative pets.

The confusion about *Cyanorhamphus cooki*, Gray, appears to have been cleared up at last. The 'Ibis' of last year (p. 156) contains the following: "Mr. North, having procured two authentic specimens of the Parrakeet of Norfolk Island, admits that Count Salvadori was correct in stating ('Ibis,' 1893, p. 466) that the species is quite distinct from *Cyanorhamphus novæ-zealandiæ*, and that *C. rayneri* is identical with *C. cooki*—the proper name for the Norfolk Island bird. It would seem that the species of this genus which formerly inhabited Lord Howe's Island has become extinct." So, I may add, has that which, a few years ago, inhabited Macquarie Island.*

Mr. Bethume, of the 'Hinemoa,' declares that the Macaulay Island Parrakeet is quite distinct from the one inhabiting Sunday Island. He says he could readily pick a specimen out of a hundred of the others.

I have come to the conclusion that my *Cyanorhamphus rowleyi* cannot be maintained as a species. The specimens on which it was founded were, no doubt, like Gray's *Cyanorhamphus aucklandicus*, abnormally small examples of *C. novæ-zealandiæ*.

Mr. Cheeseman records that he found this Parrakeet very plentiful on Macaulay Island, that it was seen hopping about on the short grass, in flocks of about twenty to fifty, apparently feeding on the seeds of *Gnaphalium* and *Erigeron*, and so tame that he had no difficulty in moving up to them and capturing them with his hat before they attempted to fly. He states that all his specimens were slightly larger than New Zealand ones, but he could not detect any other difference. It is highly probable, therefore, that this was *Cyanorhamphus cyanurus*, which differs only in having the tail of a bluish hue.

Dr. Lorenz, in commenting on the specimens contained in the Reischek collection, says he entirely concurs with Mr. Rothschild in treating all the forms existing in the North and South Islands and in the Auckland and Chatham Islands, irrespective of size, as referable to *Cyanorhamphus novæ-zealandiæ*; but he goes further and says that the bird from the Kermadec Islands, *C. cyanurus* of Rothschild, approaches so near to *C. novæ-zealandiæ* that,

* CYANORHAMPHUS COOKI.—Count Salvadori writes in the 'Ibis' (1893, p. 466): "I am quite persuaded that the type of *P. cooki* (like the type of *C. rayneri*) is a specimen from Norfolk Island, which has been wrongly labelled 'New Zealand,' and that *C. cooki* is a perfectly distinct species, quite distinct from *C. novæ-zealandiæ*. If the Australian and New Zealand naturalists will take the trouble to bring together specimens of the genus *Cyanorhamphus* from the different islands, they will find that they belong to insular forms perfectly distinct from one another."

Referring to this, Mr. North writes ('Proc. Zool. Soc., N.S.W.,' viii., p. 520): "I can assure him (Count Salvadori), as regards Lord Howe Island, it has been diligently searched at various times by such keen enthusiasts as Mr. George Masters and Mr. J. A. Thorpe, but not a single specimen of *Cyanorhamphus* was ever obtained by them. At the time of the visit of the Australian Museum party, Messrs. Etheridge, Whitelegge, and Thorpe, in September, 1887 (and who remained three weeks on the island), they were informed by the inhabitants that this Parrakeet had at one time existed in large numbers, but had gradually disappeared about ten years ago. Since their stay on the Island, Mr. T. R. Icely, the Visiting Magistrate, has, on behalf of the trustees of the Australian Museum, acquired from the islanders many rare specimens, but not a Parrakeet amongst them."

In another report he states that he had received two specimens of the Norfolk Island Parrakeet in spirits, procured on October 3rd, 1893, and immediately on examining these specimens "found them to be quite different and specifically distinct from *C. novæ-zealandiæ*, being larger and having a more robust bill; the crimson colour on the forehead and vertex more extended, and the spot on the ear-coverts but slightly indicated by obscure crimson, instead of the streak across the eyes terminating on the ear coverts in deep crimson, as in *C. novæ-zealandiæ*." He adds:—"C rayneri will, therefore, rank as a synonym of *C. cooki*, which is to be regretted, for ornithologists who have only Gray's misleading description of *C. cooki* will never be able to recognise in it the species of *Cyanorhamphus* which inhabits Norfolk Island."

in his opinion, "it would be to greater advantage if it were considered only as a sub-species of the same."

Dr. Lorenz, in his account of the collection referred to ('Ann. Hofm.,' Wien, xvii., pp. 301-22), proposes to keep *Cyanorhamphus hochstetteri*, of which he gives a minute description, distinct from *C. erythrotis*. The following is a translation of his remarks on this point:

Forbes and likewise Rothschild agree in this view that *C. hochstetteri*, from Antipodes Island, is not specifically different from *C. erythrotis*, Wagler, from Macquarie Island. We ourselves think that in that instance we have to deal with two forms which must be kept separate as sub-specific, the two islands being situated at considerable distance apart from each other. As Rothschild quite correctly remarked when he set up *C. forbesi*, from the Chatham Islands, in the case of the various species of *Cyanorhamphus*, the birds inhabiting different islands are always constant forms. Undoubtedly it is more practicable to maintain in doubtful cases, like the present, the separation than to draw together prematurely forms that may have in the end to be again separated. Reischek narrates that these birds live on the ground, frequenting cavities and passages which exist under the perennial roots of the grass, and that they are very reluctant to rise.

ORDER PSITTACIFORMES.]

[FAMILY PSITTACIDÆ.

CYANORHAMPHUS ERYTHROTIS.

(THE AUCKLAND-ISLAND PARRAKEET.)

Platycercus erythrotis (Wagler), **Buller, Birds of New Zealand, vol. i., p. 137** (as synonym of *P. novæ-zealandiæ*).

CURIOUSLY enough, associated with *Cyanorhamphus unicolor* on Antipodes Island, as already stated, is a form more nearly allied to our Red-fronted Parrakeet. This is *Cyanorhamphus erythrotis*, of which several living examples were brought to me by the officers of the 'Hinemoa.' The Parrakeet from the Auckland Islands is no doubt referable to the same species. That from Macaulay Island (Kermadec group), of which several were brought by the 'Hinemoa,' is undoubtedly the same as our *Cyanorhamphus novæ-zealandiæ*, which enjoys a wide geographic range.

I had one of these birds caged for some time. Its irides were of a clear pink colour when in health, but they became paler when the bird sickened and died. From this specimen I obtained the following measurements: Extreme length, 17 in.; extent of wings, 12 in.; wing from flexure, 5.75 in.; tail, 6 in.; bill, along the ridge, .90 in., along the edge of lower mandible, .50 in.; tarsus, .90 in.; longer fore-toe and claw, 1.25 in.; longer hind-toe and claw, 1.20 in. It proved on dissection to be a male.

This species has a peculiar cry—a short, shrill note—which further distinguishes it from *Cyanorhamphus novæ-zealandiæ*.

Count Salvadori is of opinion that this species should be regarded as *Cyanorhamphus hochstetteri* (Cf. Salvad., 'Cat. B. B.M.,' xx., p. 577), *Cyanorhamphus erythrotis* being the representative form on Macquarie Island. I have never seen the British Museum example mentioned by Dr. Finsch in his 'Die Papageien,' vol. ii., p. 275; but he treats it as a mere

synonym of *Cyanorhamphus novæ-zealandiæ*. In any case there seems to be much uncertainty about the origin of this specimen, and the late Captain Fairchild informed me that he had never been able to get any evidence as to the existence of a Parrakeet on Macquarie Island.

Count Salvadori ('Cat. B.,' xx., p. 577) treats *Cyanorhamphus hochstetteri* (Reischek) from Antipodes Island as distinct from *C. erythrotis* of Macquarie Island, but I cannot recognise any such distinction. Dr. Forbes ('Ibis,' 1893, p. 281) says: "In the British Museum Collection there are two specimens of *Cyanorhamphus erythrotis*, one without locality, and the other from Macquarie Island, both of which I have most carefully examined and compared with my own specimen from Antipodes Island, now in the British Museum, and I can find nothing by which they can be separated from each other."

Captain Hutton writes me: "The Hon. H. C. Butler, His Excellency's A.D.C., caught a beautiful yellow variety of *Cyanorhamphus erythrotis* on Antipodes Island. He has it alive still." I learnt afterwards that it had made its escape from its cage, in Wellington, and was never recovered.

ORDER PSITTACIFORMES.]

[FAMILY PSITTACIDÆ.

CYANORHAMPHUS CYANURUS.

(KERMADEC-ISLANDS PARRAKEET.)

Cyanorhamphus cyanurus, Salvad., *Ann. and Mag., N.H.*, vol. vii., p. 68 (1891).

I HAVE on several occasions in my communications to the Wellington Philosophical Society referred to the Parrakeet of the Kermadec Islands, with a bluish-coloured tail.

This bird has been discriminated by Count Salvadori as a distinct species, on a specimen received from Raoul Island in the Gould Collection (July, 1854), under the above name, and given the following distinguishing characters:—

Adult male.—Similar to *C. novæ-zealandiæ*, but larger, and with the tail blue, the two central tail feathers tinged with green on both webs, the remainder on the outer webs towards the base; under wing-coverts and also the longest under tail-coverts tinged with blue; tail underneath dusky olive, darker than in *C. novæ-zealandiæ*; iris, red; bill, black, with the base of the upper mandible silvery grey; feet, dusky. Total length, 12·7 inches; wing, 6·6; tail, 6·5; bill, about ·8; tarsus, ·82 ('Cat. Birds, Brit. Mus.,' xx., p. 587).

Mr. Cheeseman, who collected specimens of a Parrakeet (presumably of this species) on Sunday, Meyer, and Macaulay Islands, states that the bird was being rapidly exterminated by the introduced cats, now run wild.

Mr. Ernest Bell, of Wellington, had a tame one (obtained at Curtis Island, Kermadec group) for a considerable time. It ultimately went the way of all flesh, and the skin was, I believe, forwarded to the Tring Museum.

CYANORHAMPHUS AURICEPS.

(YELLOW-FRONTED PARRAKEET.)

Platycercus auriceps (Kuhl), **Buller, Birds of New Zealand, vol. i., p. 142.**

I HAVE described (2nd. ed., vol. i., p. 143) the beautiful yellow Parrakeet in the Colonial Museum, the gift of the late Dr. Lemon. There is an equally lovely object in the Southland Museum. On the forehead there is the usual mark of arterial red, and, with this exception, the whole of the plumage is of a vivid canary yellow; primaries and their coverts white. Bill and feet white.*

There is another beautiful example of the same kind in the possession of Mrs. Trask at Nelson. I had an opportunity of examining it on my last visit to that city, and then made the following note:—Almost entire plumage beautiful vivid yellow; frontal band and a broad thigh spot on each side, carmine red; bastard-quills, blue; outer vanes of the secondaries in both wings of the normal green colour; shaft lines of tail-feathers, white; bill white, with a tinge of blue at the base; tarsi and toes, white. This very lovely Parrakeet was killed on a wooded hill in the vicinity of the city by a lad who, after the first view, spent several days in pursuit of it.

Mr. Townson, of Westport, assures me that a perfectly white Parrakeet appeared once in the neighbourhood of the town, but eluded all attempts to capture it.

Mr. R. J. Barnes, of Wellington, writes me:—

I was much interested in reading your account of the Orange-fronted Parrakeet. There is a specimen of this bird at the local Working Men's Club. It has full range of the billiard and refreshment rooms, patters out the usual parrot phrases, and has become remarkably tame and bold; but more remarkable still is the affection it shows for a flute walking-stick belonging to the steward. If a member, or even a stranger, takes the stick and plays on it, or simply blows through it, the bird will come and sit beside him or perhaps on his knee, talk and whistle in its own way, work its head and body about, put a foot up to its beak as if it also were playing an imaginary flute, and altogether behave as if its little heart were brimming over with happiness. The intense bodily effort and expression it throws into the words 'pretty boy' while it looks up into one's face is very amusing. If the flute-stick be passed round from member to member, or from room to room, the bird will follow it all the time. Like the Kea, it is also developing a carnivorous habit; one of its little games is to alight on somebody's shoulder, and, if it is not carefully watched, it will seize hold of the soft lobe of the ear and give a nip sufficiently vigorous to draw blood. Altogether it is a great favourite with the members of the institution.

The Yellow-fronted Parrakeet is easily netted, and, when caged, soon adapts itself to captivity. Twenty years ago a Mr. Bills, of Dunedin, brought a hundred or more of them, in cages, to England, and they found ready purchasers at a guinea each.

C. malherbei, G. R. Gray (*nec* Souancé), from Saltwater Creek, Canterbury, is undoubtedly this species.

I have no doubt whatever that *Cyanorhamphus intermedius*, Reichenbach, is (as suggested by Count Salvadori) nothing but the common form of *C. auriceps*, individuals of which differ a good deal in size.

* The Ring Parrakeet (*Palæornis torquatus*), a favourite cage-bird in India, is much inclined to develop yellow plumage. Many of them are more or less heavily splashed with yellow, while perfect *lutinoes* are far from rare, and are extremely beautiful birds. The males, it is said, in these cases retain the pink neck-ring, and the bill is almost red.

CYANORHAMPHUS MALHERBEI.

(ORANGE-FRONTED PARRAKEET.)

Platycercus alpinus, Buller, *Birds of New Zealand*, vol. i., p. 146.

I THINK Count Salvadori ('Cat. B.,' xx., p. 590) correctly identifies my *Cyanorhamphus alpinus* with the species described by Souancé ('Rev. et Mag. de Zool.,' 1857) under the above name. The author adds the following note: "Habitat unknown; type in the Museum at Metz."

CYANORHAMPHUS FORBESI.

(CHATHAM-ISLANDS PARRAKEET.)

Cyanorhamphus forbesi, Rothschild, *P.Z.S.*, 1893, p. 529.

THE Chatham-Islands bird differs so much from the yellow-fronted Parrakeet of New Zealand that Mr. Walter Rothschild has characterised it as a distinct species under the above name. As he has pointed out, it is uniformly larger, and with the crimson band in front of the yellow crown much narrower. In *Cyanorhamphus auriceps*, moreover, the band of crimson reaches the eye, and in some specimens there is also a crimson patch behind the latter, whilst in this new species there is always a clear space between the crimson band and the eye.

The types are in Mr. Rothschild's Museum at Tring, and the form is dedicated to Dr. H. O. Forbes, who has added so much to our knowledge of the natural history of the Chatham Islands.

STRINGOPS HABROPTILUS.

(OWL-PARROT.)

Stringops habroptilus, Gray; Buller, *Birds of New Zealand*, vol. i., p. 176.

It is gratifying to learn that the Kakapo is still plentiful in the wooded country on the west coast of the South Island, in spite of the steady spread of stoats and ferrets; but in former times this bird was, of course, far more numerous.

Major Mair informs me that the Kakapo, according to the Maoris, is still to be found in the Upper Wanganui. Formerly it was very abundant there, as also in the Kaimanawa Ranges, in the direction of Taupo. Major Mair adds: "The natives caught the Kakapo by the aid of trained dogs. The birds, when going out to feed, always placed one on sentry. The object with the Kakapo-hunter was to bag this one first, then the whole family would be secured; but if the sentinel gave the alarm the others all slipped over the side of the ridge. The dogs used to wear a rattle, called by the Whanganui *tatara*, and by the Ngatimaniapoto *rora*. The purpose of this rattle was that the masters of the dogs should know where they were."

Captain G. Mair writes me that, according to the Maoris, on Hauhangataho, an isolated hill about ten miles to the westward of Ruapehu and the watershed of the Manganuiateao, Kakapos are still plentiful. His informant, Wi Takerei, showed him the feathers of two he had killed at the foot of the Kaimanawa Range, near Tokano.

The food of the Kakapo consists entirely of vegetable matter, and it has a prodigious appetite. In a standard American work appears the extraordinary statement that it "burrows in the ground or in holes in the rocks, and feeds upon worms and grubs"!

I have described in Vol. I. (pp. 179-189) the natural surroundings of the Kakapo in its favourite haunts. The subjoined reproduced photograph gives a very good idea of the home of this remarkable Parrot. This is one of my daughter's most successful efforts, the negative being itself very sharp and the details of the picture well produced. It was taken at Wet Jacket Arm, on the West Coast, where this Parrot abounds. The Kakapo browses, so to speak, on the green mosses that carpet the ground, and its colours are so closely assimilated to those of the vegetation as almost to defy detection, even at close quarters. Although nocturnal in its habits, it also comes out to feed in the shade during dull weather and towards evening, when this protective colouring must be a great safeguard to the bird.

Mr. Roberts, when camping out with his survey party, saw three Kakapos deliberately warming themselves by his wood fire. They preened their feathers and seemed perfectly at home. From the Maitai River southward to Milford Sound he found Kakapos pretty numerous in all the *Fagus* forests. To the northward of the Maitai River he never met with it, although examples have been obtained from the wooded ranges behind the Ross Diggings. Sir J. Von Haast met with it on the Maruia Plains, as recorded in his exploration of the Nelson Province.

A specimen in the Southland Museum presents the blue glint on the plumage of the upper surface, characteristic of the so-called *Stringops greyi*, Gray.

As showing how tenacious the British Museum Catalogue is of its nomenclature, I may mention that *Stringops greyi* is retained as a good species, by Count Salvadori, notwithstanding that I showed conclusively in 1872 ('Birds of N. Z.,' 1st ed., p. 27) that it was a mere individual variety of *Stringops habroptilus*. Even in his recently published 'Handlist' Dr. Sharpe includes it as a recognised species, adding, however, in a footnote: "The Hon. Walter Rothschild (*in litt.*) considers that *S. greyi* is only an abnormally coloured example of *S. habroptilus*."

I have described in Vol. I. (pp. 177-78) several remarkable varieties of this bird, the tendency generally being towards a more or less yellow plumage. I received from Martin's Bay a paler-coloured specimen than I had previously seen, the entire under-surface being dull lemon-yellow clouded with obscure green and brown, the upper parts much suffused with yellow, the tail-feathers clear lemon-yellow with black shafts and obscurely barred and toothed with brown, the primaries lemon-yellow and the secondaries greenish-yellow, with similar blackish-brown markings to those of the ordinary bird.

My collector, Mr. Charles Robinson, gave me the following note: "I forgot to mention to you the fact that I have invariably found that the Kakapo assimilates its colour to the vegetation

that it frequents; for instance, in the low flat country, where the ground is damp and has a green mossy surface, there you will find the plumage of the bird green, with streaks of black and scarcely a tinge of yellow. Then, again, in the high country, that is to say, where the bush ends and the snow-grass commences, the general aspect of the vegetation is yellow. There you will find the plumage of the Kakapo more or less suffused with yellow. I remember a party of surveyors getting some on the ranges near the Haast River, the plumage of which was entirely yellow." One such bird was brought to Wellington by a Mr. Bradshaw, of the West Coast, the entire plumage of which was vivid canary yellow, fading to pale yellow on the cheeks and throat; bill white, and feet flesh-coloured. He declared, on the authority of the Maoris, that it was a distinct species, and he set a value on the skin accordingly. The fourth example of *Notornis*



THE HOME OF THE KAKAPO—WET JACKET ARM.

had just been purchased by the Government for £250, and, gauging the value by that transaction, Bradshaw demanded £500 for his yellow Kakapo. For a year or more it remained locked up in the fireproof safe at the Colonial Museum, and, finally, through the kind offices of Sir James Hector, it came into my son's possession at a considerably lower figure than that named. It would be difficult to imagine a more beautiful bird, although I do not, of course, claim for it more recognition than is due to an accidental variety. It is really a lovely bird and, if I may so express it, of striking personality. It is a female, and was captured in December, 1895.*

* Referring to this specimen, my son writes: "On moving the plumage a beautiful white down is disclosed. It is certainly a lovely bird, quite the most beautiful thing in the bird line I have ever seen"!

Forty years ago the Kakapo was extremely abundant in the Lake Brunner district, but at the time of Mr. W. W. Smith's visit, in 1888, it had become extremely scarce, betokening the extinction of the bird at no distant date. Mr. Smith says:—

No more interesting or profitable district could be visited by the botanist or ornithologist in New Zealand than that around the shores of Lake Brunner. The magnificent primæval forest is due to the greater humidity of the lake valley, as compared with many other parts of the West Coast, and to the great depth of vegetable mould, or rich virgin soil, which covered the whole face of the country before the forest spread over it. I have seen most of the great bush-lands of New Zealand, but nowhere can the vegetation of the bush be seen in such profusion and perfection, rivalling in luxuriance the tropical American forests so fully recorded in the admirable notes of Bates on the Amazons and Belt on Nicaragua. Among the rich grove of tree-ferns the Kakapo and the Kiwi have their home. In the saplings of taller growths and among the branches of the towering timber-trees many birds revel and enliven the bush through the day with their rich and varied notes. As evening comes on, the calls of nocturnal and semi-nocturnal species are heard. In the dwarf ferns the Weka moves stealthily about, silently peering into the tent, ready to pick up any bright object and carry it off, to be left and lost in the bush. In the branches of decaying trees the Kaka is busy searching in the bark and leaves for insects, uttering, as it flies from tree to tree, a hoarse discordant scream. The little Owl answers from all directions the call of 'Morepork.' The croaking of the Kakapo among the ferns and lower branches, busily consuming the leaves, and the shrill night-cry of the Kiwi, are the only sounds which disturb the serene silence of the forest. . . . Being nocturnal in their habits, the Kakapos emerge from their hiding-places in the evening to feed, and climb among the lower branches, consuming the soft vegetation. When several are feeding together they continue throughout the night to answer each other's calls, or hoarse mutterings, uttered while masticating their food. On very dark nights it is pleasing to steal as near them as possible and listen to their nibbling at the tender leaves, while they croak and mutter continuously. By the morning their crops are enlarged to their full extent with the nutritious green food consumed during the night. On moonlight nights their sight is clearer, and they take advantage of this to roam farther from their hiding-places to feed. On the outskirts of the bush several may be seen together waddling leisurely along towards some favourite feeding-ground, returning, when their hunger is appeased, to their usual hiding-place. The latter is generally in or about the decayed roots of old trees, or hollow prostrate timber. It is sometimes easy to find their homes by the presence of little trodden paths leading to them.

Mr. Richard Henry writes in his 'Habits of Flightless Birds' (p. 20): "The Kakapo makes her nest on the ground in some of the mossy glens and bays, and lays from two to four white eggs, like those of the Harrier-hawk. I never found two birds in the one glen at any season, though there is room for a dozen, and I think that the male never goes near a nest and knows nothing about it."

Mr. Elsdon Best, in his interesting notes on 'Forest Lore' (published in the *Lyttelton Times*), gives the following Maori story:—

The Kakapo (now extinct in Tuhoeland) was hunted with dogs at night. 'Kakara' were tied round the necks of the dogs in order to acquaint the hunters with their whereabouts. These 'kakara' consisted of four or six flat pieces of whalebone, about four inches long, and fastened on a string. The call for the Kakapo was given by placing the hand to the side of the mouth. According to Major Mair, this Kakara appears to be termed Tatara among the Wanganui tribes, and Rore among the Ngati-Maniapoto. (See 'Trans. N.Z. Inst.,' vol. xxviii., p. 347.)

A most singular circumstance in connection with the Kakapo and its doings is the custom, ceremony, or amusement of the Whawharua. As is commonly known, the Kakapo is a night bird, and during the day it remains concealed in rugged and precipitous places. At night, however, the birds come forth and collect at their Whawharua, which is a common meeting place or playground for all birds which belong to that peculiar tribe or Whawharua. Having collected, every bird, with one exception, goes through a strange performance, by beating its wings on the ground and uttering its weird cry, at the

same time forming a hole (pokorua) in the ground with its beak. (Ko te mahi a nga Kakapo ki te Whawharua, he patu i ona paihau ki te whenua, me te rara a tona waha ki te tangi. Ahakoa he rau nga pokorua, ka kiia tena whenua he Whawharua.) Each Whawharua has its leader, which is known as the Tiaka. During the above performance the Tiaka keeps walking round the outer edge of the Whawharua, presumably acting as a sentry, and does not join in the picnic. At dawn the Tiaka leads the flock back to their hiding places. This Tiaka is said to have been always a small bird. The Natives say that the birds collect to 'tangi.' This is certainly a curious and interesting item, and I have never before heard it spoken of; but the old Maoris here stoutly maintain that it was a well-known fact in former days, in the days of the Rarangi-tahi.

The Kakapo are said to perform the above antics every night during the winter season, but discontinue it during the summer.

These Natives likewise state that during the winter the Kakapo diligently collect the fallen berries of the Hinau and Tawa trees, as also fern root (aruhe), and carry the same to secluded springs or pools of water, in which they place them, to be used as food during the summer months, when such berries are not to be obtained in the forest. When summer begins the Kakapo commence to feed upon the food thus preserved. This would tend to prove the Kakapo to be a deeply sagacious bird, and one which provides for the future.

Canon Stack, in his very interesting account of the original occupation of certain districts by the Ngaitahu, refers thus incidentally to the home of the Kakapo: "These young chiefs (known as the Whanaunga-purahonui), having ascertained, from persons familiar with the physical features of the country, the names of the various localities, proceeded to divide the unallotted parts of the country amongst themselves; and their procedure on this occasion is of particular interest, as it serves to illustrate one method by which the Maoris acquire title to land. Kakapo-skins were at that time highly prized, and every one of the party was desirous to secure a parrot preserve to himself. As they approached the mountain known as Whata-arama they each claimed a peak of the range. 'That is mine,' cried Moki, 'that my daughter Te Aotukia may possess a kilt of Kakapo-skins to make her fragrant and beautiful.' 'Mine,' cried Tanetiki, 'that the Kakapo-skins may form a kilt for my daughter Hinemihi.' 'Mine,' cried Hikatatue, 'that the Kakapo-skins may form a girdle for my daughter Kaiata.' Moki, one of the party, had his servant with him, who whispered in his ear, 'Wait, do not claim anything yet'; and then the man climbed up into a tree. 'What are you doing?' said the rest of the party. 'Only breaking off the dry branches to light our fire with.' But he was in reality looking out for the mountain which Tura-kautahi had told his master was the place where the Kakapo were most abundant. Presently he espied the far-off peak. 'My mountain, Kura-tawhiti!' he cried. 'Ours!' said Moki. The claim was at once recognised by the other members of the exploring expedition, and Moki's descendants have ever since enjoyed the exclusive right to catch Kakapo on Kura-tawhiti."

Professor Newton, in his 'Dictionary of Birds,' writing of this species, corrects a current statement that in this form of Parrot the furcula has been "lost," while the sternum lacks a keel, and he explains that whereas the clavicles, which in most birds unite to form the first-mentioned bone, are present, though they do not meet; on the other hand, the keel on the sternum is undoubtedly present, and, though much reduced in size, is nearly as much developed as in the Dodo and the Weka. He adds (p. 474): "Yet, though much has been written about the Kakapo, there is no detailed description of its internal structure, a fact the more to be regretted since the bird is obviously doomed to early extinction, and the opportunity of solving several problems of interest, which a minute examination of its anatomy might afford, will be lost if the matter be not speedily taken in hand. Few existing birds

offer a better subject for a monographer, and it is to be hoped that, if perish the genus and species must, posterity will not have to lament the want of an exhaustive treatise on the many and wonderful characteristics of what Professor Fürbringer considers to be one of the primitive forms of *Psittaci*." I would venture to remark that the absence of so desirable a monograph can hardly be due to the want of material. Years ago I presented to the British Museum a perfect skeleton of the Kakapo, and another to the Cambridge University Museum. I also forwarded to London a specimen in spirits, for the express purpose of having its anatomy investigated.*

Mr. R. Henry, the official custodian of Resolution Island, has supplied to Lord Ranfurly the following interesting notes on the Kakapo, as reported in the 'Ibis' of October, 1905 (vol. v., pp. 583-585):—"The male Kakapo can swell up his 'air-sac,' of which the female has no trace, till it is nearly as big as his body, and must be a formidable-looking fellow on parade. I never saw one booming, for they never do so in captivity. I went a special trip to Wet Jacket Arm to try and get better acquainted with them, and on January 21st, 1898, climbed a high ridge south-west of Oke Island. It was very steep and rough, and all along its narrow top for half-a-mile were a number of 'dusting-holes,' as I used to call them; but there was not a particle of dust in them, for there had been about an inch of rain every day for a month. 'Dusting-holes' is, perhaps, a bad name; 'bowers' would, I think, be more suitable. They were about eighteen inches in diameter, fairly level on the bottom, and three inches deep, with steep sides. In some the peaty earth was firmly pressed down as if by the naked hand, while in others it was freshly raked up and loose. All were connected with one another by fresh, well-beaten pathways, and at this season a good many birds must go up there of an evening, but in the off-season the place is deserted. This suggests that the bowers are used for dancing or parade in the courting season. The Australian Lyre-Birds make very similar holes. Some one suggested that the booming may be a defiance or a challenge between the males, as in the case of cocks crowing; but I think that among the thinly scattered population of Kakapos in this dense forest, with such poor means of travelling, it was necessary for either the male or female to have a loud call. The voice of the female Kakapo is a hoarse cough, and can be only heard for a couple of hundred yards, while the booming of the males can be heard for a couple of miles. Therefore, I think it likely that the males take up their places in the 'bowers,' extend their air-sacs, and give vent to their love-songs, and that the females, attracted by this sound, come up to see the show. Though one may hear plenty of them in the evening, it is never possible to tell where they are within a mile, as they do not keep on calling long enough for one to hunt them up. They start with a couple of short grunts, and then utter five or six deep, measured notes like the sound of a muffled drum, the loudest in the middle. The male repeats this series about three times in the daylight and is then silent, and other Kakapos, perhaps miles away, take up the sound. On this ridge we got quite close to a calling bird, and can testify as to the power of the note. I could feel the vibration of it, and likewise my boy, who was holding the dog thirty yards away. I thought the drummer was just at my feet, and we stood still for a long

* I hope this will be ultimately done by some competent anatomist in the Colony. I have come to the conclusion that there is a manifest advantage in all questions of this kind being investigated by ourselves on the spot, the risk of error being thus reduced to a minimum. In illustration of my reasoning, I may refer to a very curious mistake made by Dr. Alfred Russel Wallace, the great apostle of the creed of natural selection—to whom, indeed, we all metaphorically doff our hats in respectful admiration. In writing of the New Zealand avifauna he confounds the Kakapo with the Kea, declaring that the moss-eating *Stringops* had become carnivorous, and was most destructive to the settlers' sheep!

time in hopes that he would commence again, but he was silent, and the dog ultimately found him forty yards away hiding under a log. We had come up with all caution, stopping when he stopped, and walking when he was drumming; yet he seemed to have taken alarm. This will show how hard it must be to get right up to a bird if he takes alarm at that distance. This happened about 4 p.m., but, as a rule, very few birds are drumming so early." He adds: "I was always puzzled to know how it was that Kakapos got so fat in summer-time, but now I find that they suck the honey out of the rata-blossoms, like all the other bush-birds, and as this honey is plentiful in the Sounds in December, it must form an important item to mix with their various other foods. On December 18th, with the aid of a little glass syringe, I gathered a teaspoonful of this honey in ten minutes, so it must be easy for the Kakapos to get as much of it as they want. The little branches of the ratas are very strong, and able to bear their weight."

ORDER CORACIIFORMES.]

[FAMILY CYPSELIDÆ.

CHÆTURA CAUDACUTA.

(SPINE-TAILED SWIFT.)

Choetura caudacuta (Latham), **Kirk, Ibis, 1889, p. 299.**

AN example of this species—an adult female, as it proved on dissection—was shot by Mr. Bridge at Manaia, in the Hawera country, in March, 1888, and was presented to Mr. Drew, who placed it in the collection of birds now forming part of the Wanganui Museum.

ORDER CORACIIFORMES.]

[FAMILY CYPSELIDÆ.

CYPSELUS PACIFICUS.

(AUSTRALIAN SWIFT.)

Cypselus pacificus (Latham), **Buller, Birds of New Zealand, vol. i., p. 116.**

THERE has been no appearance of this Swift in New Zealand since the instance recorded, as above, in my Second Edition.

EURYSTOMUS AUSTRALIS.

(AUSTRALIAN ROLLER.)

Eurystomus pacificus (Latham), Buller, *Birds of New Zealand*, vol. i., p. 118.

STRAY examples of this well-known Australian species still continue to be heard of in New Zealand. Mr. Walling Handley, writing to me from Blenheim on December 22nd, says: "During the month of November a specimen of the Australian Roller, in perfect plumage, was shot at the Weld's Hill Station, Awatere, by a station-hand. The bird was first noticed flying with a peculiar uncertain flapping flight over the tussock grasses, in quest of moths, in one of the paddocks adjacent to the station. Its handsome appearance, as seen by the waning light of eventide, and the striking contrast it presented to the sombre brown of the surrounding vegetation, excited attention, and this led to its pursuit and capture. The plumage, &c., corresponds in every particular with the technical description of the species as given in your 'Manual of New Zealand Birds.'"

I have already recorded several occurrences of this vagrant species on the west coast of the South Island. The following paragraph appeared not long ago in the *New Zealand Herald* (Auckland):—

"Some specimens of the Australian Dollar-bird [the Roller] have appeared in the Wairoa district, and some of them have been shot out of curiosity. They are entirely insectivorous, as can be seen by a careful observer, and as was proved by a *post-mortem* examination of one."

This was in the month of November. It is to be hoped that the species will become a permanent resident with us. It ought certainly to do as well as the Australian Magpie (*Gymnorhina tibicen*), which has been introduced by the settlers, and is firmly establishing itself in several parts of the country.

It will be remembered that the first occurrence of this well-known Australian species in New Zealand was recorded by Mr. J. F. Cheeseman, who states ('Trans. N.Z. Inst.,' xiv., p. 265, 1882), that a specimen was shot at Te Piku, eight miles north of the Manukau Heads, in the provincial district of Auckland.

HALCYON VAGANS.

(NEW ZEALAND KINGFISHER.)

Halcyon vagans (Lesson), **Buller, Birds of New Zealand, vol. i., p. 121.**

I HAVE already placed on record many observations showing the predatory character of our Kingfisher. The following note received from Captain H. F. Way is only another count in the indictment: "Whangamata, November 22nd.—The other day, while I was waiting at the entrance of a drive for my mate to turn up (7 a.m.), I noticed a lot of Blight-birds (*Zosterops*) flying about a tree; then I heard a strange noise—'whack-whack-whack.' At first I could not make out where the noise came from—another 'whack.' Presently I saw a Kingfisher sitting on the branch of a tree with something in his beak. Then came a rapid succession of whacks—first to the right, then to the left—and I noticed something flying about in the air. Then I made out that he had a Blight-bird in his beak, and was a-whacking the poor little beggar on the branch to get rid of the feathers. As fast as he got rid of the feathers so he kept on swallowing the bird, and the last thing I saw of the latter was his legs protruding from the Kingfisher's beak. The most singular thing was the vigour with which the Kingfisher struck his victim against the branch—generally three whacks on each side and then a rest, and so on to the end."

The following paragraph appeared in the *Rangitikei Advocate*: "A Paraekaretu farmer, who had unaccountably lost several hives of bees, at length discovered that the losses were due to a Kingfisher, which, on being killed, was found to have its crop full of bees."

I am indebted to the kindness of Mr. Taylor White, of Hawke's Bay, for a lovely specimen of this bird. It is a perfect albino, every feather being of the purest white, and the whiteness extending even to the bill and feet.*

I have noticed that this bird never builds a nest except in such a position that there is a bough within a few yards to serve as a resting place. It follows that suitable localities are often rejected because of the absence of this accommodation.

As showing the adaptability of birds to circumstances, Mr. McLean reports that in January, 1884, he took a nest of this Kingfisher from the cut side of an old haystack into which the bird had tunnelled in the same manner as it does in a sandy bank.

There is no doubt that the Kingfisher, when it has the opportunity, preys on small birds. Mr. J. W. Hall, of Auckland, records an instance of seeing one of these birds holding a live *Zosterops* in his bill which he was battering to death against the branch of a tree.

At Papaitonga, on February 22nd, young birds were just out of the nest but fully fledged, and making a continual rasping cry.

At Levuka, Fiji, I saw a Kingfisher, presumably *H. sacer*, looking very different from *H. vagans*, even at a distance, having paler under-parts.

* There seems no limit to the number of species in New Zealand exhibiting signs of albinism. I have recorded albinos more or less complete in the case of no less than forty-one of our native species. And the curious thing is that this extraordinary tendency extends itself to the introduced birds, which appear to produce albinos far more frequently than in any other part of the world. An interesting and suggestive article on this subject, from the pen of Mr. W. W. Smith, appeared in the *Field* newspaper of 1890, pp. 891-2.

I examined a series of fourteen specimens of *Halcyon vagans* in the Liverpool Museum, including the type of *Halcyon norfolkiensis*, Tristram ('Ibis,' 1885, p. 49).^{*} These examples came from Wellington, New Zealand, and from Norfolk Island. I am unable to recognise any specific difference in the birds from these separate localities.

Of the closely related *Halcyon sanctus* there are forty specimens in the collection from different parts of Australia, and these are readily distinguishable from our bird by their smaller size. *H. sacer*, from Tonga and the Fiji Islands, appears to be distinct, and possibly *H. sordidus* also, from North Australia.

ORDER COCCYGES.]

[FAMILY CUCULIDÆ.

URODYNAMIS TAITENSIS.

(LONG-TAILED CUCKOO.)

Eudynamis taitensis (Sparrm.), Buller, *Birds of New Zealand*, vol. i., p. 127.

IN the early days of spring the piercing far-off cry of the Koheperoa strikes upon the ear with a strange effect. Its very suddenness is exhilarating, and the announcement to all is clear and decisive that the warmth of summer is at hand. The bird is always heard before it is seen, and the familiar sound at once recalls the elegant form of this annual visitant, with its

^{*} Canon Tristram writes (*loc. cit.*, p. 49), in relation to this Kingfisher: "The *Halcyon* of Norfolk Island appears to me to be decidedly distinct. I have before me a large series of all the known species of the group. In dimensions it is rather larger than most of the other species, its wing measuring 3·9 in. as against 3·6 in *H. sancta*, *H. solomonis*, Ramsay, and *H. sacra*, 3·7 in *H. vagans* and *H. julia*, 4·1 in *H. chloris* and *H. occipitalis*, and 4·2 in *H. tristrami*. The frontal buffy-white spot does not, as in all the other species, except *H. solomonis*, extend further than the angle of the eye, so that the light eyebrow is entirely wanting. The under wing-coverts are light buff, as in *H. sancta*, to which in general coloration it approaches most closely, except that the green of the head and back is decidedly duller, though not nearly so dark as in *H. vagans*. But its most characteristic distinction is the bill, which differs markedly from that of all its congeners, both mandibles being extremely compressed, the culmen being slightly recurved and the gonys still more so. The width of the bill at the nostrils is 0·3 in., while the nearest approach to that is 0·4 in one specimen of *H. sancta*, all the other species varying from 0·45 to 0·55 in. in width at this point. . . . This description will, I think, justify the recognition of the bird under the name which Mr. Layard proposes for it, of *Halcyon norfolkiensis*."

Mr. Etheridge, on the contrary, in his account of the birds of Lord Howe Island, in the same group, declares that the Kingfisher is identical with the New Zealand species, adding: "We were told it was a comparatively recent addition to the avifauna of the island. It may constantly be seen flying about the small open places and clearings along the shore, or perched on dead timber, or even seated on small rocks at and below tide-marks. It pairs in October, or perhaps towards the end of September. Sir W. L. Buller's remarks on the habits of this bird can be very appropriately applied to the variety found at Lord Howe."

Mr. Moseley (in his 'Notes by a Naturalist' on the *Challenger*) says, at p. 278, that when in Wellington he observed the Kingfishers in abundance perching on the telegraph wires and dashing down from thence upon their prey in the shallow water of the harbour. He says it particularly interested him, because it was the first time he had seen a Kingfisher leading a littoral existence and feeding on sea-fish.

striped and barred plumage of rich chestnut-brown and white and its wealth of tail, whilst the mind naturally reverts at once to the long sea-pilgrimage the bird has performed to announce the welcome message.

Specimens of this Cuckoo from the Kermadec Islands differ from ordinary New Zealand examples in their richer colouring, the throat and sides of the neck having a strong wash of chestnut-brown, and the wing-coverts being largely tipped with white instead of yellowish-brown, presenting a spotted appearance, this character extending also, but in a less degree, to the scapulars, uropygium, and upper tail-coverts.

On June 8th I received from Mr. H. H. Travers a note saying that he had just obtained from New Plymouth, in the flesh, a Koheperoa in very fat condition. This seemed very late in the season for such a bird! Mr. Travers suggests that some may remain with us all the year round. It may be so, but the occurrence is a very unusual one. It is clear, however, that there is no lack of winter food for this species. And if it is able to endure our seasonable cold, why should it have inherited its wonderful migratory instinct? This is one of the problems of natural history which will probably never find a solution. Why should the Godwit make its annual weary pilgrimage from New Zealand to Siberia, when, as we know, the few individuals that remain with us through the winter are always fat and in good condition?

In the Otago Museum there is a specimen of the young bird from the Society Islands, presenting some resemblance to my Kermadec Islands bird. Of the latter I have now three specimens—one received from Captain Fairchild, and two purchased from Mr. Bell. All three are very much alike, differing from each other only in the depth of colouring, and the bird is to my eye readily distinguishable from the ordinary New Zealand form.

At Stewart Island Mr. Livingstone showed me a freshly skinned one. It differed from ordinary specimens in having all the smaller wing-coverts tipped with white, as in the Kermadec Islands bird.

The Society Islands examples have, if I remember aright, rounded spots of white on the wings and a warmer colouring on the throat.

This bird evidently has a good memory. Notwithstanding its long migration, it seems to remember its favourite resorts in New Zealand. A pair—presumably the identical pair—will return to the same trees or shrubbery, season after season, and remain there for days together.

It is marvellous enough to see the young of this Cuckoo fed and tended by a Warbler about one-tenth its own size; but what will be thought of this enterprising little bird undertaking the charge of two such foster children? Captain Mair, writing to me from Whangarei on March 16th, 1901, says: "I have just been watching a poor, tiny Riroriro feeding two voracious young Koheperoa in the orchard here. It was really most interesting."

Professor Hutton writes me: "*Urodynamis taitensis*, I strongly suspect, goes from New Zealand, through New Caledonia, to the Solomon Islands, where it winters."

Mr. Swayne writes: "In August last year (1895) I was at the island of Niu, in the Ellice Group, and while walking through the island along with the local trader we passed a clump of 'buka' trees, in which, as is common throughout the Ellice Islands, there were numbers of the Noddies (*Anous stolidus*) nesting. I noticed that in one tree the birds were much disturbed and apparently frightened. The trader explained that the birds were disturbed by a 'Hawk.' We remained some time watching, and I saw our friend the Cuckoo drive a Noddy out of the nest and take possession of it, while the old birds and apparent proprietors tried in vain to dislodge the intruder. . . . I do not doubt that the Cuckoo was about to lay. . . . It would be interesting to know whether the young Cuckoo is raised on a fish diet." I should think it far more likely that the predatory Cuckoo was feasting itself on the Noddy's eggs, as their custom is.

At a meeting of the Wellington Philosophical Society, on November 22nd, 1898, Sir James Hector exhibited a specimen of this Cuckoo, from the stomach of which he had taken two young birds, nestlings of *Pseudogerygone flaviventris*, with wing-feathers just sprouting. It is well known that the Koheperoa is predatory, and I long ago recorded the taking of a very young Tui from the stomach of one I had shot; but in this instance the shameless Cuckoo had apparently devoured the rightful occupants before appropriating the nest of the Grey Warbler and depositing its eggs, or, finding the nest tenanted by young birds, it may have plundered it, and then proceeded to look for another containing eggs. In either case, it presents the Cuckoo in the character of a very unscrupulous marauder!

In January, 1904, Dr. Robert Fulton read a paper before the Science Conference in Dunedin, being 'Notes on the Habits of the Long-tailed Cuckoo,' of which he courteously sent me, amongst others, an advanced copy. In reviewing this interesting paper, the Editors of the 'Ibis' are inaccurate in their statement (*op. cit.*, 1904, p. 468) that Dr. Fulton enumerates "a list of sixteen species which are known, with more or less certainty, to be the foster-parents of *Urodynamis*." It is true that the author mentions sixteen cases, more or less specific, that have come to his knowledge, but the alleged hosts were only ten native species and a Brown Linnet. The evidence adduced in some of these cases is anything but satisfactory, and one knows how even tolerably good observers are liable to make mistakes in identifying birds on the wing. I have no doubt whatever that *Miro albifrons*, *Myiomoira macrocephala*, and *Clitonyx ochrocephala*, have been sometimes pressed into the service; but I am very sceptical about several of the other species mentioned. I think it highly unlikely, for example, that our Wood-Pigeon (which is strictly frugivorous) has ever been the foster-parent of the Cuckoo, for it would know nothing of feeding the young bird on caterpillars, on which it almost wholly subsists; and I think it just as unlikely that the Tui has ever filled that office, seeing what a determined and chronic hostility exists between these birds. Then, again, even a practised observer might be mistaken in thinking that he saw a Grey Creeper, instead of a Grey Warbler (very similar in appearance and manner of flight), "feeding a young Cuckoo." In the case of the Bell-Bird, all that is alleged is that a Cuckoo was "seen sitting on the nest"; and in that of *Zosterops* an egg of a dark colour "tapering to one end" was found in the nest, and a Cuckoo was "seen coming out of the tree." To my mind, much more conclusive evidence must be forthcoming before these isolated cases can be regarded as established. As regards the Grey Warbler, however, there are innumerable well-authenticated cases all over the country.*

* Dealing with the extraordinary annual migration of this species, Dr. Fulton says: "I have recently communicated with a number of the lighthouse keepers on our coast-line, and have gathered some interesting information on this subject. The earliest intimation of the appearance of this bird last season comes from Mr. John Duthie, at Cape Palliser, who says that the first Cuckoo arrived on June 6th, and six or seven a few days later. They hung about the lighthouse for six or eight weeks, and then suddenly disappeared the first week in August. Mr. Hansen, from Pencarrow Head Lighthouse, reported that one morning in the first week of September, exact day uncertain, when coming from the tower after putting out the light, at 6.30 a.m., he saw a Long-tailed Cuckoo. The bird was flying low, just skimming the tops of the tauhinu scrub. They have been seen at Doubtless Bay, at Stephen Island Lighthouse, on the Kermadecs, and at Akaroa, about the middle of the same month. At Mokohinu Lighthouse Mr. Sandager caught several on the lantern at night in October, and Mr. Elsdon Best reported a young one at Ruatahuna on the 10th of that month. Mr. McNeill saw the birds at Cape Campbell Lighthouse in thick, dirty weather at night in October; they have been frequently seen at Cape Farewell Lighthouse; East Takaha, Nelson; Queen Charlotte Sound; Sumner and New Brighton; Waikouaiti, Otago; Riverton and Te Tua, Southland, in the second week in October; and I myself saw the bird on October 20th and 25th in the bush at Newington, Dunedin. Reischek found them on the Barriers in November; and Mr. Byers, of Stirling, Otago, who has for years noted their arrival carefully, finds that they invariably come to that locality from November 5th to the 7th. That they keep on arriving from the north-east until about the end of November is shown by the fact of one having been caught on the

CHALCOCOCCYX LUCIDUS.

(SHINING CUCKOO.)

Chrysococcyx lucidus (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 132.**

"WHITI-WHITI-ORA!" cries the Bronze Cuckoo, and the Maori exclaims, "So the spring is upon us!" Knowing it to be a summer migrant, and ignorant of its course of flight, he calls this sweet harbinger of the season "the bird from Hawaiki"—that being the traditional home of his race. Doubtless the bird was familiar to his ancestors in other parts of Polynesia, and that is how this legend, which has a foundation of truth, has survived so long. Even modern naturalists, who have had wider opportunities of observation, are unable to add very much to the Maori history of this migratory species.

The Shining Cuckoo generally leaves New Zealand about the first or second week of January; but I received two specimens, in good plumage, from Mr. Morgan Carkeek, as late in the season as February 22nd.

Dr. Ramsay states that this bird has been caught at sea, between Lord Howe Island* and New Zealand, doubtless whilst migrating from the latter to the former island.

Mr. James Dall, of Collingwood, writes me that about the end of January or beginning of February, 1898, he found a young Shining Cuckoo being fed by Blight-birds (*Zosterops cærulescens*) on the leech that attacks the hawthorn. He had shot the bird before he knew what it was; and there could be no mistake about the observation. The specimen was sent in spirits to the Government Agricultural Department at Wellington.

Captain Hutton, in his paper on 'Our Migratory Birds,'† says: "The Long-tailed Cuckoo (*Urodynamis taitensis*) arrives in New Zealand at the end of October or beginning of November, and leaves in January or February, but its movements are not so easily traced as those of the Shining Cuckoo, for it is generally silent in the daytime. As in the last case, the young birds linger longer than their parents, and are occasionally seen as late as the first week in April. These birds retain their young spotted plumage *much longer than the young of the Shining Cuckoo*; but no specimen showing the change into that of the adult has as yet been shot in New Zealand." (The italics are mine.) But does our Shining Cuckoo ever have the spotted

* Lord Howe Island is situated in S. lat. 31° 33' and E. long. 159° 5'. It is said to be 450 miles north-east of Sydney, and 300 miles from Port Macquarie. It is some 500 miles this side of Norfolk Island, and is the most southern of the outlying islands on the east coast of Australia. Its zoology has been closely investigated by Mr. E. Etheridge, jun., the Palæontologist to the Australian Museum and Geological Survey of New South Wales.

† *Trans. N. Z. Inst.*, vol. xxxiii.

lighthouse at Cape Maria Van Dieman, at five in the afternoon of the 28th of that month. There was a strong easterly gale blowing at the time, and the barometer registered 29.83, the thermometer 63° Fahr. The bird was exhausted and quiet, but its plumage was fresh and not in any way draggled or weather-beaten. I have numbers of references of its having been *heard* on various dates, from September 3rd at Queenstown; the 4th at Winton; the 13th at Akaroa; the 28th at Te Kumu; onwards to the end of October at Waiau, Southland, and elsewhere. . . . Numerous other notes as to its arrival can be found in the pages of the 'Transactions of the New Zealand Institute,' and they all point to the advent of this mysterious bird from the north-east, probably in small parties, and generally at night."

plumage? I have never actually taken the young bird from the nest of the Riroriro; but I have obtained several specimens, just after quitting the nest, with the rictal membrane still well developed, and in none of these has there been any sign whatever of the spotted markings. I have described the plumage in this stage in the 'Birds of New Zealand' (vol. i., p. 133).

Captain Hutton continues: "In the Chatham Islands the birds come and go at about the same dates as in New Zealand. Here we have distinct evidence that the birds travel from the north to the south, and then back again to the north. They have not been seen to leave the islands, but it is impossible that they could remain during the winter and yet escape the eyes and snares of the Maoris. Also, although the birds have not been seen to leave, Mr. T. H. Potts told me that he once saw the arrival of a Shining Cuckoo at the Chatham Islands. It was so tired when it landed that it allowed him to pick it up in his hand, although, under ordinary circumstances, it is a very shy bird."

ORDER COCCYGES.]

[FAMILY CUCULIDÆ.

CUCULUS SATURATUS.

(AUSTRALIAN CUCKOO.)

Cuculus saturatus, Horsf., J. A. S., Beng. xii., p. 942 [1843.]

I AM indebted to Captain Hutton for the opportunity of adding this species. Writing to me on April 21st, 1902, he says: "Last February the groom of Mrs. E. Halcombe, at Lake Te Anau, shot a specimen of the Australian Cuckoo—*Cuculus intermedius*. I have seen the skin, and Mrs. Halcombe assures me that she saw the specimen in the flesh."

The range of this species is from Siberia and Southern Japan, throughout China and the Indian Peninsula, through the Malay Archipelago to New Guinea, New Caledonia, and Australia. This is the first instance, so far as I know, of its occurrence in New Zealand.

ORDER PASSERIFORMES.]

[FAMILY XENICIDÆ.

ACANTHIDOSITTA CHLORIS.

(RIFLEMAN.)

Acanthidositta chloris (Sparrm.), Buller, Birds of New Zealand, vol. i., p. 113.

THE Maoris apply different names to the male and female of this species; the former being Kikimutu and the latter Moutuutu.

This appears to be a late breeder. On November 28th, in the Puketoi Range, I was sitting on a log skinning a Huia, and the camp was perfectly still. On the ground around were numerous feathers of a Kaka my Maori attendant had plucked for breakfast. A Rifleman (the male bird) came almost to my feet, and, picking up a feather, flew away with it, and then a second and a third. On the last occasion I followed the bird, and saw it enter a round cavity about the size of a rat's hole, sixteen or eighteen feet up the trunk of a young hinau. The day following, in the Makuri Gorge, I saw another of these birds carrying a feather, evidently for nest-building purposes.

It seems pretty clear that the male of this species assists in the work of incubation, for a specimen which I shot in the Ngarara Ranges, on October 13th, had the under-parts completely denuded of feathers. It was evidently the end of the breeding season, because, on dissection, I found the testes extremely minute. As I have already explained ('Birds of New Zealand,' vol. i., p. 115), this singular little bird is in reality a dwarf *Pitta* of a degenerate type. It would be interesting to know whether other members of this family (to which I have given the name *Xenicidæ*) have the same habit, or whether the males of any of the true Pittas are known to incubate.

There is a nest of this species in the Canterbury Museum. It is a long, somewhat pear-shaped structure, with a deep cavity, having its entrance at the larger end. It is composed of wiry twigs, grass stems, and skeletons of leaves; and contains a single white, ovoid egg.

An exhaustive memoir on the anatomy of *Acanthidositta chloris*, with some remarks on the systematic position of the genera *Acanthidositta* and *Xenicus*, by Mr. W. P. Pycraft, appears in the 'Ibis' for October, 1905 (vol. v., pp. 603-621).

ORDER PASSERIFORMES.]

[FAMILY XENICIDÆ.]

ACANTHIDOSITTA CITRINA.

(ALPINE RIFLEMAN.)

***Acanthidositta chloris* (Gmelin), Buller [in part], Birds of New Zealand, vol. i., p. 113.**

DR. FINSCH has long contended that *Acanthidositta citrina* is distinguishable from *A. chloris*, being larger and somewhat different in its coloration.

I have received some fine specimens from the Alpine country in the provincial district of Nelson, and am now constrained to admit the species.

Mr. Brough writes me: "I am sending you some specimens of the Alpine or Snow Rifleman. It is much larger than the species inhabiting the lowlands. I met with it generally at an altitude of 4,000 feet, on the outskirts of the forest growth. They generally move about in pairs, and are not unlike the Bush-Wren in their habits. They seemed to be paired all the winter. I am quite certain that this bird is distinct from *A. chloris*, and my experience of the birds in this district extends back some thirty years, during the whole of which time I have spent several months in the year in remote parts of the country."

Mr. Ogilvie Grant, who had arrived independently at the same conclusion from an examination of specimens sent home by Lord Ranfurly, writes in the *Bull. B.O.C.* (vol. xv., p. 82): "This species has been generally confounded with the closely allied form, *A. chloris*, Sparrm., but the *adult male* may be at once recognised by the wide and strongly defined white eyebrow stripe, and by having the mantle and back of a bright sap-green colour, the rump and upper tail-coverts yellow, faintly tinged with greenish, but contrasting strongly with the back; and the sides, flanks, and under tail-coverts bright yellow; iris and bill black, legs brown, feet light yellow.

"The *adult female* differs chiefly from the female of *A. chloris* in having the feathers of the head and nape light brown with marginal streaks of black (as in the immature bird); the superciliary stripe white and very strongly defined: the back dark olive-brown, indistinctly streaked with blackish in younger birds; the rump and upper tail-coverts brownish yellow.

"*Young* birds may be distinguished from the young of *A. chloris* by having less green on the upper parts, only the rump and outer margins of the quills being tinged with olive. The pale brown black-edged feathers, confined to the head and nape in the young of *A. chloris*, extend over the back in the present species, and the spotting on the throat and breast is much bolder."

ORDER PASSERIFORMES.]

[FAMILY XENICIDÆ.

XENICUS LONGIPES.

(BUSH-WREN.)

Xenicus longipes (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 108.**

At Milford Sound I met with *Xenicus longipes*—a single one, which I managed to secure undamaged with a charge of dust-shot. The bird has a rapid, furtive way of moving about, keeping, as a rule, near the ground, and hunting for its food among the mosses and fungi covering the roots of the trees. When I first saw it, and excited its attention by an imitation of its feeble cry, it hopped about on a branch quite close to me, and several times opened its mouth, after the manner of a young bird, but without making any sound. It was very active, not remaining for one moment in the same position. It soon became indifferent to my simulated call, retired to some distance, then descended to the ground and hopped about, apparently looking for food, and moving so swiftly that I found it very difficult to get a shot. The specimen proved to be a young bird, but it has exactly the same colours as the adult, although somewhat duller. In this respect it differs from the allied genus, *Acanthidositta*.

I saw another bird a few weeks later on Stewart Island. It was in a low shrub by the roadside, and on my approach descended quickly to the ground, but it was so nimble in its movements that I was unable to get a shot at it.

Mr. Brough, to whom I was indebted for some beautiful specimens of the Bush-Wren some years ago, writes giving me an account of a subsequent visit to the locality whence he obtained these birds—the low woods under the Tasman Range. He says: "When I went back this year

I pushed on to a spot a few miles further on than where I camped before. I am sorry to say that the Bush Wren and the Wood Robin had almost entirely disappeared. I am certain I did not see more than a dozen during the several months I was out. The heavy falls of snow last winter may have been the means of killing off a number of these birds, or the wet summer may have induced them to migrate to some drier woods at a lower altitude; but, whatever the cause may be, they are gone. Whilst I was there we had an immense and continuous fall of rain, and the bush was never dry. We had twenty-six wet days in January, and during the whole time of my stay it was mostly wet, with very little sunshine. The Wood Robin, which was formerly so plentiful there, has almost entirely gone. This is a great pity, because there is no bird more respected by the backwoodsman than this one. There is nothing else to relieve the monotony of these gloomy red-birch forests. Their raillery, if I may so term their string of noisy notes, brings the explorer suddenly up when he is rambling alone in these mountain solitudes, and produces a feeling of companionship. The absence of this sprightly bird was, I may say, the saddest feature of my four months in the wet and lifeless forest."

He afterwards sent me for examination some beautiful specimens of the Bush Wren, accompanied by the following notes:—

"Far up, in a gloomy, wet mountain gully, nearly 4,000 feet above the level of the sea, I came across a few families of this little silent bird. In the gully which they were inhabiting grew a dense mass of a flax-like plant—a species of *Astelia*. These birds seem to display more of the golden colour at the bend of the wing than any I have seen before, and they do not appear to be so large as those I sent you from the Big Bush some years ago. All my specimens of this bird were obtained by using a small net.

"I have not met with any Rock Wrens up in this district. From where I was camped, half an hour's climb took me into the open country—a bare mountain-side, in fact. I had a long ramble over the rugged ridges and across the mountain-slopes, or 'mountain meadows' as they are called. I went to the summit of Mount Nugget, 4,995 feet, and then I went in another direction to the summit of Mount Luna, 5,261 feet, but I never saw or heard a Rock Wren. It is clear that the species does not exist in this part of the country.

"I have been much impressed by the stillness and the almost entire absence of animal life in these red-birch forests, so entirely different from my experience in the Pelorus woods. There, as I lay in my tent at sunrise, the woods fairly rang with the chorus of songsters, the introduced Finches, Thrushes, and Starlings joining in with the native birds. They seem to me to be sun-worshippers. I have timed them with my watch, and find that the concert lasts just an hour. Here, on the contrary, there is no sun-worship. I have often listened in my tent at break of day, waiting for the song to commence, but there has been nothing but a chirp or two, or the note of a Kaka passing overhead. And here I may remark that the note of the Kaka in these woods is very different to anything I have heard elsewhere—a fact also noticed by Mr. Saxon, the surveyor. It is something like this: 'Motuaka, hurry up!' followed by a shrill whistle—like a shepherd calling his dog. I shot one or two, but I could observe nothing different from other Kakas; only at this season (April) they were nothing but bones and feathers.

"Of the White-legged Wren I have seen altogether five. They inhabit the niania forest, at an altitude verging on 4,000 feet. They look very conspicuous hopping about on their white legs amongst the fallen niania leaves. I managed to catch one alive in the net, but it ultimately escaped. Another I wounded, and then it got away amongst the niania. One specimen, however, I secured, and placed in spirit for you."

Later on he writes: "I have now been out in the bush for six months, and have seen only one Bush Wren, two Rifle Wrens, two Saddlebacks, and no Rock Wrens. These birds are almost extinct in the Nelson and Pelorus forests, where they were so plentiful eight years ago.

Weasels, ferrets, stoats, rats, and wild cats abound in our woods. Cats are the greatest enemy to the Wren family. The animals I have mentioned are making terrible devastation amongst our native birds."

The examples sent to me by the same correspondent were all captured by him by means of a hand-net and, as specimens, were entirely uninjured. In one of his last letters he says: "On my last visit to the mountains I found four very neatly made nests of the Bush Wren. They were placed under an overhanging clay bank, but there were no eggs in any of them. I found out when I was living for months in this solitude among the Wrens that if by chance you wound or hurt one at this season it is sure to fly away to its nest. I observed, too, that in wet or stormy weather they rest in their old abandoned nests."

The rapid disappearance of the New Zealand avifauna receives confirmation on all hands. Mr. Brough, who has collected for me for many years past, on April 22nd, 1899, wrote as follows: "As I had not heard from you for a long time I naturally thought that you had got all the birds you required; and I also thought that it was well you had done so in time—for the simple reason that birds of the kinds I sent you in long-past days are seldom seen or heard of now. It is only in the wildest and most remote parts of this province (Nelson) that the purely native denizens of the woods are to be found; and I am sorry to say that there are very few even there, and these getting fewer and fewer every year. Their greatest enemies, of course, are the introduced carnivorous animals—the ferrets, stoats, and weasels. These are now to be met with roaming about far away behind the bush-blocks, and through the densest and wettest parts of our woods. For the last few years I have had, in the prosecution of my work, to spend three or four months at a time in the remotest parts of the province. Although otherwise engaged, I have been able to devote some attention to natural history, and from personal observation I can perceive what is going on from year to year in our wilderness. I am aware that much of the blame in regard to the disappearance of our native birds is charged to collectors. Well, there are really few natural history collectors in New Zealand; and I am quite certain that a dozen weasels will cause more destruction to native birds in one day than all the collectors put together. If some of the birds are not collected soon they never will be. I remember, about twenty-five years ago, being at the head of the Maruia Plains, where native Quail were very plentiful at that period; but I took no skins, thinking at the time that they would be always fairly plentiful. But I was mistaken. They disappeared, and I have never come across the real native Quail since. I have about half-a-dozen very good Bush Wrens (*Xenicus longipes*) and about four in spirits, and two or three Wood Robins (*Miro ochrotarsus*), and these are positively all I have been able to get during the last two years."

As the same mail reached me I received a letter from another valued correspondent (Mr. W. W. Smith, of Ashburton), in which he says: "The Wood-hen has vanished from this valley. The stoats and weasels are becoming alarmingly numerous all along the valley, and have exterminated the Wekas in Peel Forest and throughout the district of the Upper Gorge."

Under the more favourable conditions of life the ferret in New Zealand is developing into a formidable animal. Just before I left the Colony in 1899, Sir James Hector showed me a ferret that had been killed in Mr. Gore's hen-roost in the city of Wellington. It was about twice the size of an ordinary ferret.* I took it for a polecat, as it was blackish on the back, but Sir James assured me that it was not. This specimen was a good illustration of what favourable

* Yellow shaded with black. Length to end of tail (from snout), 27·5 inches; maximum girth, 10·5 inches. Weighed 4½ lb.



NORTH-ISLAND WREN .
Mr. Lillies
4574 XENICUS STOKESI. Ad. & Juv
(NATURAL SIZE.)

p. 243

conditions of existence and new environment will do. Before it was destroyed this little beast had killed six hens! The taxidermist of the Museum, when exhibiting the skin, informed me that not long before a female ferret had got access to his dovecot, and, in a single night, killed no less than twenty adult pigeons. Sir James Hector, however, outdid this narrative by assuring me that one of his neighbours lost thirty-seven hens and chickens in a single night, whilst another lost about forty. In both these cases the marauding ferret was killed and afterwards preserved in the Colonial Museum. As Sir James remarked to me, a blood-thirsty beast like the one killed by Mr. Gore—as large as an ordinary cat—would not hesitate to attack and kill a child. In all these cases the destroyer of the ferret rendered himself liable to a penalty of Five Pounds, recoverable summarily! From this point of view there was nothing unreasonable in the suggestion of a “son of the soil” that the “man in authority who authorised this importation into the colony deserved to have his ears struck off and nailed to the back of the Museum door as a caution to evil-doers!”

The mistaken zeal of the Government and of the various Acclimatisation Societies is producing the result of which Professor Newton warned the colonists years ago. The following paragraph from a Canterbury newspaper sufficiently attests the fact:—

THE SMALL BIRD NUISANCE.—So great a pest has the small bird nuisance become in Canterbury that the local Road Boards and County Councils are taking steps towards shaping a course of united action. Over £3,000 have been spent this season in purchasing heads and eggs of Sparrows and Blackbirds. The largest number of eggs received in one day by a local body was 28,152 by the Springs Road Board. In some districts men and boys are reported to have made from 30s. to £2 per week in collecting heads and eggs, but in spite of this there does not appear to be any decrease in the number of birds. They seem to be for ever on the increase. The Waimate County Council spent about £300 in purchasing heads and eggs, paying away as much in one day as £21 17s. 4d. The Levels County Council has expended during the season £350, the Ashburton Council £582, and the Selwyn Council over £300. The figures available show that about 4,000,000 eggs were taken during the year.

ORDER PASSERIFORMES.]

[FAMILY XENICIDÆ.]

XENICUS STOKESI.

(NORTH-ISLAND WREN.)

Xenicus stokesi, G. R. Gray, Ibis, 1862, p. 129.

MR. OGILVIE GRANT, in October, 1904, made a communication to the British Ornithologists' Club, showing conclusively that the bird obtained by Captain Stokes in the Rimutaka Ranges, near Wellington, and named by Mr. G. R. Gray *Xenicus stokesi*, is really distinct from *Xenicus longipes*, from the South Island, with which it has long been confounded. Captain Stokes collected two specimens, one of which Mr. Gray referred erroneously to *Xenicus longipes*, making the other the type of his new species. As a matter of fact, both of these birds belonged to one and the same species, the proposed type being the young of the other. As Mr. Grant has pointed

out, *Xenicus stokesi* may be readily distinguished from *X. longipes* by the shining slate-blue sides of the neck and chest, tinged, in certain lights, with greenish, and by the patch of pure yellow feathers on the yellowish-green flanks.* The immature bird, in general coloration, bears a close resemblance to *Xenicus gilviventris* from the mountains of the South Island. Indeed, they are so much alike that Dr. Selater when cataloguing this series of birds in the British Museum ('Cat. Birds,' vol. xiv., p. 453), unhesitatingly identified it as the adult of that species, and the label attached to the specimen bears evidence of this in his own handwriting. But Dr. Selater apparently overlooked one very important structural character. The hind-claw in this bird is only .25 of an inch in length, whereas in ordinary specimens of *Xenicus gilviventris* it is fully double that length. In one of the specimens recently sent to the British Museum by the Earl of Ranfurly, the hind-claw exceeds that length, being, as I ascertained by measurement, .6 of an inch.

For the first time in the North Island I saw this bird (at any rate, I feel persuaded it was) on November 29th, but only on the wing, in the wooded hills just beyond the Makuri Gorge. It crossed the road at a moderate height with a very laboured flight, and was immediately lost among the foliage. The natives state that formerly the Bush Wren (the Matuhituhi) was numerous here and at a higher elevation on these wooded ranges.

ORDER PASSERIFORMES.]

[FAMILY XENICIDÆ.

XENICUS GILVIVENTRIS.

(ROCK WREN.)

***Xenicus gilviventris*, Von Pelzeln; Buller, Birds of New Zealand, vol. i., p. 111.**

To show how rare this form has become, I may mention that Mr. Carkeek, during many months of exploration in the mountains of the Marlborough district, never met with more than two examples.

The traveller overland from Christchurch to the west coast cannot have failed to gaze with admiration on the picturesque scenery disclosed to his view on both sides of the Otira valley, the immense ranges piled one above the other—clothed with dense vegetation from the base to the snow-line, commencing with huge rata and black birch trees, becoming less and less at a higher elevation, and ending with the usual stunted mountain growths—and lifting to the sky their rugged summits. Deeply covered with snow in winter, they present at this season a magnificent picture of wild Nature, the snow often encroaching on the vegetation far down the mountain-sides. In summer, when the snow-cap has disappeared, the mountain-tops present bare and barren faces, with irregular patches of tussock and snow-grass struggling for existence amidst the faces or taluses of loose shingle and rubble, with here and there a miniature snow-field that has resisted the thawing warmth, whilst ever and anon fleecy

* Bull. B.O.C., No. cxix., p. 15.



ISLAND-WREN
453 TRAVERSIA INSULARIS *lyalli*
(NATURAL SIZE.)

p. 244

clouds hang around the rugged pinnacles, like huge diaphanous veils. Amid this wild environment, ever in motion and flitting about with the activity of mice, in quest of the minute insects on which they subsist, and the seeds of various Alpine plants, the Rock Wren shares the habitat of the little mountain lizard (*Lygosoma moco*). Its colours so harmonise with its surroundings, that it is almost impossible to detect its presence except when in motion; and it is then so nimble that it is a very difficult thing to obtain a shot. The bird is admirably suited to its environment; and, as I have already pointed out (2nd ed., vol. i., p. 112), there is a peculiar adaptation to its habits of life in the appreciable elongation of its hind claw, as compared with that of its near congener, the Bush Wren.

In the last letter received from Mr. Brough, dated Nelson, September 10th, 1905, he writes: "I have lately visited Mount Kendal, a barren mountain, composed of granite, and having little or no vegetation on its surface. It is about the remotest point one can reach from Nelson. I spent two days and a night on the desert mountain, and obtained three Rock Wrens there. Why this silent little bird should select so desolate a place to live in is a mystery to me. I found it very difficult to decoy them out from amongst the mountain *débris* where they effectually hide themselves. I saw only five during the whole of my visit, and the three I skinned were unfortunately carried off by rats, in spite of all my precautions."

ORDER PASSERIFORMES.]

[FAMILY XENICIDÆ.]

TRAVERSIA INSULARIS.
(STEPHEN-ISLAND WREN.)

Xenicus insularis, Buller, Ibis, 1895, p. 236.

THERE is probably nothing so refreshing to the soul of a naturalist as the discovery of a new species. Quite apart from the satisfaction of being able to impose a specific name, which, according to the accepted rules of zoological nomenclature, must be respected for all time, there is an indescribable charm in the mere fact of discovery. It is common to all naturalists in every branch of research, and operates as a spur to the most tedious and difficult investigations. With some specialists the ruling passion is to append the coveted *mihi* to the new species; but in the case of most naturalists this consideration is, I really think, subservient to a loftier feeling—that love of discovery which is so characteristic of the true man of science. In a country where the fauna and flora have been pretty thoroughly worked, such as New Zealand, the delight experienced at finding an undoubted new species is, of course, proportioned to the rarity of such occurrences. It will be readily understood, therefore, how pleased I was at receiving, through the kind offices of Mr. Bethune, of the Government steamboat, 'Hinemoa,' the skin of a bird from Stephen Island which was entirely distinct from anything hitherto known. I saw at a glance that it belonged to the small group of New Zealand birds which I had placed in a family by themselves under the name of *Xenicidæ*. Possessing characters

in common with *Xenicus longipes* and *X. gilviventris*, which inhabit the mainland, it is a very distinct species, apparently restricted in its habitat to Stephen Island, where several specimens have been procured. Being anxious that a coloured figure of so rare and interesting a form should be published in the 'Ibis,' I lost no time in forwarding the specimen to the Editors of that magazine, together with the following description and diagnosis of the species:—

Projecting into Cook Strait as a bold and salient point from the eastern shore of Blind Bay, and rising to a height of 2,180 feet, is D'Urville Island, presenting a broken and partially wooded surface. With a width of from five to six miles, it stretches away seventeen miles to the northward, whilst to the south it is separated from the mainland by a very narrow channel known as the French Pass. Lying two miles to the north-eastward of the northern extremity of D'Urville Island, and rising abruptly from the sea to the height of a thousand feet, is Stephen Island, only about a square mile in extent, and more or less wooded on its sides. From this island I have lately received a single specimen of a species of *Xenicus* entirely distinct from the two forms (*X. longipes* and *X. gilviventris*) inhabiting the mainland.

I have described and named this new bird, which may fittingly be called the Island Wren, as distinguished from our Bush Wren and Rock Wren; and as these island forms present features of special interest to the student of geographic zoology, I am forwarding the specimen in the hope that it may be figured.

My correspondent on the island informs me that the bird is semi-nocturnal in its habits, and that he has seen three examples, all of which were brought in at different times by the cat.

I hope shortly to receive further specimens of this interesting form. In the meantime I regret that I am unable to give the sex of the bird here described. In plumage it differs conspicuously from the other two species, and it has a decidedly more robust bill, whilst the claw on the hind-toe is not larger than in *Xenicus longipes*.

Xenicus insularis, sp. nov.

Upper surface generally dark-olive with brown margins to the feathers, presenting an obscurely spotted or mottled appearance; a minute whitish spot in front of and another underneath the eye; a narrow, superciliary streak, and the whole of the throat, fore-neck, and breast, as well as the wings at their flexure, olivaceous yellow with darker margins; wings and tail, sides of the body, abdomen, rump, and under tail-coverts, olivaceous brown. Plumage underneath plumbeous. Upper mandible dark brown with horn-coloured tip; under mandible, legs and feet, pale brown. Length 4 in.; wing, from flexure, 2 in.; tail, 0.75 in.; bill, along the ridge, 0.75 in.; along the edge of lower mandible, 0.75 in.; tarsus, 0.75 in.; middle toe and claw, 1 in.; hind-toe and claw, 0.7 in.

Hab. Stephen Island, Cook Strait, N.Z.

I have since secured a female specimen. It is somewhat smaller than the other, which is obviously a male, and has duller plumage, the mottled appearance on the upper surface being less conspicuous, and there being more vinous-brown on the sides and abdomen.

My description, as quoted above, appeared in the 'Ibis,' 1895, pp. 236-237, accompanied by a beautiful plate from the pencil of Mr. Keulemans. Unfortunately, the preparation of this plate delayed the publication of my paper three months, and in the meantime Mr. Rothschild received the bird from Mr. Henry Travers. Mr. Rothschild's description of *Traversia lyalli* appeared in the same number of the 'Ibis,' but later on, pp. 268-269. It had, however, previously been announced in the 'Bulletin of the 'British Ornithologists' Club,' issued on December 29th, 1894.

In the immediately subsequent number of the 'Ibis' (1895, p. 407) the Editors inserted the following explanatory statement:—

"*Note on Xenicus insularis*.—The bird described and figured under this name in the last number of the 'Ibis' (above, p. 236, Pl. vii.) is identical with Mr. Rothschild's *Traversia lyalli*, 'Bull. B.O.C.,' No. 22, p. x., and above, p. 269. There can be no question that the latter name has precedence in point of date of publication. Sir Walter Buller's description, together

with a specimen of the bird for illustration, were received by the Editors in this country and were in their hands before Mr. Rothschild's communication was made to the 'B.O.C.'"

In a 'Note on the Stephen-Island Wren,' by the Hon. Walter Rothschild, which appeared in 'Novitates Zoologicae' (vol. ii., p. 81), the writer says:—

"When I described this very interesting bird ('Bull. B.O.C.,' December 29th, 1894), although I had nine specimens before me, nothing was known of its habits. It has since been redescribed by Sir Walter Buller in the 'Ibis' (April, 1895), under the name of *Xenicus insularis*, but the author gives us no further particulars, except that the three specimens were brought in by the cat."

I feel that, in justice to myself, I cannot allow this statement to pass unchallenged. Now, if the facts had been what this somewhat disingenuous note implies, I should have accepted the position in silence and allowed my name for the species to rank as a synonym. It was "redescribed," certainly, but by whom? I have in my possession a letter from one of the Editors, Dr. Sclater (dated April 7th, 1896), in which he informs me that he told Mr. Rothschild I had already described the bird, and tried to dissuade him from doing what he considered an unfair thing.

Any technical construction of the rules of nomenclature notwithstanding, I think I am justified, under the circumstances, in adhering to the specific name originally bestowed by me, leaving ornithologists, with a knowledge of the facts, to adopt it or not as they may think fit.

In my opinion, however, Mr. Rothschild was quite justified in making it the type of a new genus; and I gladly adopt the name because it serves to connect Mr. Henry Travers with this interesting discovery. I have already associated his name, specifically, with one of his Chatham Island discoveries (*Miro traversi*).

In the 'Note' referred to above, Mr. Rothschild continues: "I have had a letter from Mr. Travers, who tells me that all the eleven specimens (ten in my museum and one from which Sir Walter Buller made his description) were brought in by the cat. The bird itself has only been seen on two occasions alive, when disturbed from holes in the rocks, and was not obtained. It is nocturnal, runs like a mouse and very fast, and did *not* fly at all."

I think that Mr. Rothschild is under a misapprehension in supposing that he possesses all the known specimens except that described by me in the 'Ibis.' Besides a pair in my son's collection, I purchased a specimen from Mr. Henry Travers for Canon Tristram; and the former gentleman has since offered to sell me two more.

Referring to this new species, an article presumably from the pen of a well-known New Zealand scientist appeared in the *Canterbury Press*, under the head of 'Found and Exterminated,' from which I take the following extract:—

At a recent meeting of the Ornithologists' Club in London, the Hon. W. Rothschild, the well-known collector, described this veritable *rara avis*, specimens of which he had obtained from Mr. Henry Travers, of Wellington, who, we understand, got them from the lighthouse-keeper at Stephen Island, who in his turn is reported to have been indebted to his cat for this remarkable ornithological "find." As to how many specimens Mr. Travers, the lighthouse-keeper, and the cat managed to secure between them we have no information, but there is very good reason to believe that the bird is no longer to be found on the island, and as it is not known to exist anywhere else, it has apparently become quite extinct. This is probably a record performance in the way of extermination. The English scientific world will hear almost simultaneously of the bird's discovery and of its disappearance before anything is known of its life-history or its habits. It was only a little creature, about four inches in length, allied to the little Rock Wren, which lives in the mountains, and is occasionally found dead on our glaciers. It was not a flightless bird, but from its structure was evidently very weak-winged, and thus fell an easy prey to the

lighthouse-keeper's cat. . . . Not only scientists but all New Zealanders who take an interest in the preservation of whatever is specially characteristic of the Colony, will deplore the extermination of such an interesting creature. It is indeed saddening to reflect how, one by one, the rare and wonderful birds which have made New Zealand an object of supreme interest among scientists all over the world are gradually becoming extinct. . . . And we certainly think it would be as well if the Marine Department, in sending lighthouse-keepers to isolated islands where interesting specimens of native fauna are known or believed to exist, were to see that they are not allowed to take any cats with them, even if mouse-traps have to be furnished at the cost of the State.

Mr. W. W. Smith, of Ashburton, in a letter to the same journal, writes:—

The setting apart of the Little Barrier and Resolution Islands as sanctuaries for vanishing native birds is a lasting honour to the originator of the scheme—the Earl of Onslow—and the present Government who adopted and put it in force. But, as Mr. Purnell observes, 'It is one thing to maintain preserves of native birds in two secluded spots, inaccessible to the vast majority of the inhabitants of New Zealand, and quite another to have those birds fluttering daily about us.' It is for the rare species still lingering in the forests and other favoured spots on the mainland we appeal; and if the Government would act as promptly in stopping marauders, commonly called natural history collectors, from visiting the outlying islands of New Zealand, and carrying off tuataras and rarer birds by hundreds, as it did the seal-poachers in the southern islands last year, it would gain the gratitude of science and coming generations.

With the views thus forcibly expressed it is impossible not to agree; and I believe measures for the better conservation of these island faunas have been under the consideration of the Government. But the collection of skins for trade purposes is, of course, a very different thing to the formation of a complete type-collection for the Colonial and other local museums.

Very diligent search has been made on Stephen Island for further specimens of the Island Wren, but without success, and there is too much reason to fear that this species has almost immediately after its discovery become extinct. It is much to be regretted that there is not a specimen in any one of our local museums.

I cannot see that any share of the blame attaches to Mr. Travers, as the above newspaper article would seem to imply. It is acknowledged that the offending cat would have devoured them all, if Mr. Travers' agent had not been there to rescue some for science. On the other hand, but for the intervention of the cat we should probably never have heard of this nocturnal species at all.

Of course, we cannot but deplore the fact that this form has been, to all appearance, blotted out. But I think we may derive comfort from the reflection that a large series of specimens (including, I believe, several in spirits) are represented in the magnificent New Zealand collection now existing in the Tring Museum. Of its habits, unfortunately, we know nothing. Mr. Lyall, the lighthouse-keeper, through whom, I believe, all the specimens were procured, reports that, so far as he could judge, it was crepuscular in its habits. If that be so, it is certainly a very interesting fact in the natural history of such a bird.

PETROCHELIDON NIGRICANS.

(AUSTRALIAN TREE-SWALLOW.)

Petrochelidon nigricans (Vieill.), Buller, *Birds of New Zealand*, vol. i., p. 74.

THIS Tree-Swallow only occurs in New Zealand, at long intervals, as a straggler from Australia.

I have already recorded several well-authenticated instances.

In 1898 I received the following interesting note from Mr. William Townson, of Westport: "About two years ago I was at Mokihinui, and saw a couple of Australian Tree-Swallows hunting flies about the head of an old rata in a bush clearing. I watched them for some time, but did not manage to get a specimen."

The same informant assures me that the species has been seen at Westport, in small numbers, for several years in succession.

Several further instances have been recorded of the occurrence in New Zealand of flights of the Australian Tree-Swallow. Mr. H. Guthrie-Smith, writing to me from Tutiri Lake, on August 20th, 1893, says: "While up at the Mahia last week, I observed some birds like Martins or Swallows. They have been there for some weeks, I believe. They were flying high above some blossoming gum-trees when they were first pointed out to me. It was a dark afternoon; but, as far as I could see, their tails were not forked. I should be much obliged if you could tell me to what species they belong. Could they be a flight of *Hirundo nigricans*?"

Mr. James Dall, of Collingwood, also wrote to me, under date of June 25th, 1893: "During this spring, summer, and autumn there have been large numbers of Australian Swallows or Martins visiting New Zealand—apparently all parts, as I see by a late *Canterbury Times* that a pair have built a nest and are hatching young ones in a mill about Oamaru, where they are being greatly cared for by every one. In the spring of 1892 flocks of two or three dozen were observed in the neighbourhood of Cape Farewell."

I have no doubt that these visitants are referable to the above species.

Mr. A. J. North has published the following note: "This species is to be found throughout the whole of Australia, Tasmania, and the southern portion of New Guinea. It arrives in New South Wales and Victoria in August, and leaves again at the latter end of February. It deposits its eggs, three in number, in the decayed wood of a hollow branch, or a bole of a tree. The ground colour is of a pinky-white, covered with minute freckles of light rusty brown, particularly towards the larger end, where, in some instances, interrupted with lilac spots, they form a zone. Others, again, are pure white, with a few fine dots of light red."

PETRŒCA TOITOI.

(NORTH-ISLAND TOMTIT.)

Myiomoira toitoi (Garnot), **Buller, Birds of New Zealand, vol. i., p. 39.**

To show how scarce this once familiar species is becoming in the far North, I would refer to Mr. Pycroft's account of the birds now to be found at the Bay of Islands.* He states that once, during a trip to Puhipuhi, he shot two of them. The old Maoris, to whom he showed the bird, recognised it, of course, but the younger generation pronounced it "a stranger from abroad."

It seems probable that the male aids in the task of incubation, for an adult bird of this sex, shot in November, had the under-parts much denuded of feathers.

An albino specimen from Otaki, for which I am indebted to Mr. Capper, has the plumage of the body almost entirely white, with a few clouded specks on the breast and sides. The wing-feathers, both primaries and secondaries, are irregularly pied; the lateral tail-feathers are marked as in the ordinary bird; the middle feathers are perfectly white. Bill, legs, and feet normal.

I have to record another partial albino of this species from Wanganui. Body plumage white, purest on the head, clouded with black on the sides of the neck, breast, and back; quills black, with white tips; wing-coverts almost entirely white; innermost tail-feathers white with a grey shade, and the rest normal; bill and legs pale yellow.

In Mr. Drew's collection at Wanganui there is a pure albino, presenting not a single dark feather.

In the Canterbury Museum there is a nest of this species from the North Island. It is a massive rounded structure, composed chiefly of mosses and dry leaves, closely fitted together. It has a deep round cup, lined with fern-hair, with the edges beautifully rounded off, the materials being closely pressed together.

PETRŒCA MACROCEPHALA.

(SOUTH-ISLAND TOMTIT.)

Myiomoira macrocephala (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 42.**

I SHALL never forget my last drive through the lovely valley of the Buller (before reaching the famous gorge of that name) in the summer of 1898, when, for hours together, the only

* *Trans. N.Z. Inst.*, vol. xxxi., pp. 141-146.

sign of animation was the solitary Tomtit flitting from one side of the road to the other, ever and anon perching on the upright boles of the trees, exhibiting its finely contrasted colours, and uttering at intervals its melodious note, from which it takes its native name of *Ngiru-ngiru*.

In this "sylvan paradise," on which the eye of the traveller never ceases to feast, the tree-ferns are a perfect study. The commonest species here is *Dicksonia squarrosa*. There are, without exaggeration, millions of them skirting the road over which the daily coach passes. At one of the roadside diggings I saw one growing out of an abandoned shaft, its crown just fitting the treacherous opening. *Cyathea smithii*, a species very sporadic in its distribution, is also very abundant here. At Woodstock, at the entrance to the valley, a settler had fenced in his quarter-acre holding with the trunks of *Cyathea antarctica*, placed close together, and these had sent up shapely crowns, forming a picturesque and really beautiful fringe to his little domain. Lower down the valley I noticed, at one place, that a number of *Cyathea smithii* had been cut down and their trunks utilised as a boundary fence by being stuck in the ground in a close line. They also had sent up new fronds forming a live fence of unusual beauty. At intervals I saw many of these tree-ferns intermixed with *Cyathea antarctica*, their crowns, both as to shape and droop, being very similar in the younger state, except that the fronds of the former were more arched and feathery. On close inspection, however, they are very easily distinguished by their central stems, those of *C. antarctica* being of uniform thickness—straight and narrow and built up, as it were, of basal stalks of growths that had been shed—those of *C. smithii* massive, often pyramidal or swelling towards the base, and composed of woody fibres closely matted together. It will be observed that the fronds of this species get narrower with age, the mature tree forming a very graceful object. Even in the young state, however, the spreading fronds, as seen just overtopping the roadside vegetation, are particularly regular and symmetrical. In one locality I saw a splendid display of *Cyathea smithii*—probably a hundred or more scattered about in an old clearing—fine, stately trees with perfect crowns, their stems densely clothed with withered fronds, hanging round them like the folds of a skirt, and presenting a very distinctive appearance.

At the time of my visit the whole bush was ablaze with the scarlet flowers of the climbing tawhihi, or *Metrosideros*, large bunches of which clung to the boles of the trees and sometimes enveloped them from top to bottom.

To illustrate the beauty of this characteristic vegetation, I introduce a photograph taken at random on this road. (See p. 116.)

The young bird, like the adult, has a pronounced yellow tinge on the breast. The young has the same piping note as the adult, but much weaker. At Stewart Island I saw an albino, but failed to get it, although I made every effort.

Mr. W. W. Smith writes ('Ibis,' 1893, p. 510): "In the month of January, when the family cares are over for the season, many adults and young leave their island bush haunts, and disperse over the plains, visiting the gardens and the plantations of the settlers. They remain about farmhouses and are common in the vicinity of towns till the month of August, when they again return to the bush to pair and breed. The migratory habit is due to the presence of more food in the settled districts than in the vicinity of the bush."

In the 'Journal of Science' for January, 1883, Mr. W. E. Barker, of Waikonini, Rangitata, records the occurrence of two nests of this little bird in a remarkable locality. They were placed in the holes of a black-pine post which had formerly been used as a slip-panel. The upper one was either deserted or not quite finished; that in the lower hole had two young ones in it. Both nests were neatly made just to fit close to the sides of the slot-holes in the post, and well back. Outwardly they were made of small chips of wood, short grass, roots and moss, while the inside was lined with moss and a mass of feathers of the

common fowl, together with a few Parrakeet feathers. The young birds had not got their eyes open, and the mother fed them fearlessly, even in the presence of persons standing a few yards off.

There is a somewhat remarkable nest of this species, from Freshwater Basin, Milford Sound, in the Colonial Museum. It is a very massive structure, and of the shape of a horse's hoof, but very much longer, measuring about 8 in. in depth, and tapering to the apex, which



BUSH VIEW IN THE BULLER VALLEY.

is about $4\frac{1}{2}$ in. across, with a deep circular cup. The nest is composed of dry mosses, rootlets, and minute vegetable twigs, all compactly welded together and exhibiting a marvellous amount of industry in so tiny a builder. The rim of the cup is lined with a few grass bents, and the interior is formed of soft vegetable materials, apparently gathered from the ground, such as the seed-pods of mosses, &c. A nest from the Chatham Islands, ascribed to this species, is of the same type as that described above, but appreciably smaller, composed of dry mosses, leaves, small twigs, and vegetable fibres, all felted well together. It has a neat round cup, about 1.5 in. deep, carefully lined with fern, hair and dry moss.

PETRŒCA VITTATA.

(DUSKY ROBIN.)

Muscicapa vittata, Quoy et Gaim.; **Voy. de l'Astrolabe**, pl. 3, fig. 2.

THE 'Transactions' of the N.Z. Institute contain a record (vol. xxiv., p. 710) that at a meeting of the Philosophical Institute of Canterbury, held on October 1st, 1891, Professor Hutton exhibited the skin of a Flycatcher which had been sent to him by Mr. Joshua Rutland, of Pelorus Valley, with the statement that it had been shot on a fruit tree at Kenepuru, near the foot of Mount Stollus, by Mr. J. McMahon. At the request of Mr. Rutland the skin had been given to the Canterbury Museum, where it is still preserved. Professor Hutton expressed his belief that the bird was identical with the English Spotted Flycatcher (*Muscicapa grisola*); adding that he was not aware that any of these birds had been turned out in New Zealand, and that it was not a specimen likely to be introduced.

Of course, the evidence would have been more complete if the bird had been delivered to the Museum in a fresh condition, for we all know how liable mistakes are apt to occur with dried skins, so much depending on individual memory.

I think it is extremely unlikely that this English species would ever occur wild in New Zealand, for the natural habitat of this bird is Europe in summer, extending in winter to Southern Africa and North-western India.

Assuming that this example was obtained at Kenepuru, as alleged, I think it far more likely to be a straggler of the well-known Australian species (*P. vittata*), which bears a general resemblance to the English bird. I have accordingly placed it, provisionally, under that head.

This species is abundantly distributed all over Tasmania, and has likewise been recorded from Victoria and South Australia.

PSEUDOGERYGONE FLAVIVENTRIS.

(GREY WARBLER.)

Gerygone flaviventris, Gray; **Buller, Birds of New Zealand**, vol. i. p. 44.

I ALWAYS associate this little bird in my mind with the finding of a dead one, more than forty years ago, at the foot of an aged kauri tree—one that had probably seen eight hundred years or more—and a tiny creature, indeed, it seemed beside the monarch of the forest. The circumstance is impressed upon my recollection because it is so unusual to find the bodies of birds that have died from natural causes. This is an observation that has been made by naturalists all over the world, as to mammals as well as birds. It is due,

no doubt, to a natural inclination to hide themselves away when the mortal agony comes on. As Professor Macgillivray has remarked, even the poor wounded Seagull seeks some quiet retreat where it may pass the time of its anguish in peace and forgetfulness of the outer world.

In the Colonial Museum there is a nest of the Grey Warbler, with a large round opening high up on the side, and exhibiting an overhanging porch-like roof.

I have noticed that this bird even in winter—indeed, all the year round—consorts habitually in pairs.

Mr. Ogilvie Grant, who recognises *Pseudogerygone igata* as a good species, and denies specific rank to *Pseudogerygone sylvestris* (Potts), writes: "Dr. Sharpe ['Zool. of the Erebus and Terror,' App., p. 25 (1875)] states that, in company with Dr. Oustalet, he had examined the type of *Gerygone igata*, which still existed in the Jardin des Plantes, and had come to the conclusion that it was distinct from *G. flaviventris*. Subsequently, however, when writing the 'Catalogue of Birds,' he appears to have changed his mind, and come to the conclusion that the names were synonymous."

Dr. Sharpe, still later, retained *Gerygone igata* as a New Zealand bird in his 'Handlist of Birds' (vol. iii., p. 227); but I have never been able to identify the species, and still regard it as *Gerygone flaviventris*, with perhaps some individual peculiarities.*

Mr. Ogilvie Grant's great point seems to be this, that whereas *Pseudogerygone flaviventris* has a red iris, *P. igata* is said to have a black one. The colour of the iris, which may be due to accident, is a very uncertain character; and I use the word "said" advisedly, because the colour of the iris in two of Lord Ranfurly's specimens rests on the authority of Mr. R. Henry (which I consider insufficient), whilst in a third specimen, in the Tring Museum, the label says, "Dunedin: iris dark." To my mind, the evidence is too slight at present, and the point is too doubtful, to justify our adding *P. igata* to our list as a separate species, to say nothing of adopting so barbarous a name.

* Dr. Ramsay says ('Proc. Z.S., N.S.W.' iii., p. 117): "GERYGONE IGATA, Gaim. 'Voy. Astrolabe,' xi., fig. 2. This species is very like *G. insularis*, from Lord Howe Island, but may at once be distinguished from it in having a clear, well-defined white line in front of the eye from its upper margin to the forehead. For description see 'Erebus and Terror,' Birds of New Zealand, p. 5. *Hab.*, Tasman's Bay, Cook's Straits. Native name, 'Igata.'

"In the Australian Museum we have a bird from New Zealand which agrees with the figures in the 'Voyage of the Astrolabe' of *G. igata*, but has the lores blackish slate-colour, and no white ring round the eye; there is a tinge of olive in the sides from the chest downwards, and under tail-coverts white; the three outer tail-feathers are crossed with white on the under side, but the outer two only on the upper; the black band on the tail is much wider, extending over about half of the feathers."



CHATHAM-ISLAND WARBLER. ⁴⁹⁰ *Nesopolynichus* PSEUDOGERYGONE ALBOFRONTATA *p.* 264
 CHATHAM-ISLAND ROBIN ^{Nesomiro} NESOMIRO TRAVERSI 492 *p.* 264
 (NATURAL SIZE.)

PSEUDOGERYGONE SYLVESTRIS.

(BUSH WARBLER.)

Gerygone sylvestris, Potts; **Buller, Birds of New Zealand**, vol. i., p. 50.

I COULD not believe that so careful an observer of birds as the late Mr. Potts would be mistaken in distinguishing a new bird, and that was why I retained his *Gerygone sylvestris* in my list, although at that time there was no preserved specimen in existence by which to test or verify his description. This omission has now been supplied. In the collection of birds brought home to Vienna by the late Mr. Reischek there was a skin which has been identified as the true *G. sylvestris*. A figure of it is given in the Annals of the Hofmuseum, Vienna (vol. xvii., 1902, p. 305, Plate xii., fig. 1), accompanied by a full description.

This bird, to judge by the figure, has a general resemblance to *P. flaviventris*, but is slighter in its form, and it is further distinguished by having brown eyes instead of red.

Dr. von Lorenz, in an account of the New Zealand birds brought to Europe by the late Mr. Reischek, devotes a passage to it, of which the following is a translation:—

Pseudogerygone sylvestris.—There are two skins which agree on the whole with Pott's diagnosis of this species, with the exception of the character of the upper tail-coverts; and probably it happened that, in the specimen described by Potts, the tail-coverts were not adequately covered by the feathers of the back, so that their grey basal half became visible; in fact, all the feathers of the rump are grey at the base. The marking of the tail-feathers also does not exactly correspond with the description, but seems generally to vary. Taking the two specimens in question, in one of them the two outermost tail-feathers have white spots on both webs, whereas in the other the tail-feathers, on each side, next to the middle one, have no white subterminal spot on the inner vane, but at this part are only of a paler brown. The general colouring of the upper parts in these birds is much darker than in *Pseudogerygone flaviventris* and may be described as olive-brown, only getting lighter towards the tail, and becoming yellowish-olive. The abdomen is pure white, and the spots are very pale cream.

The male is slightly larger in all its measurements than the female.

Reischek heard the notes of this bird—presumed them to be the bird described by Potts, and reported accordingly to Buller—in Bushy Sound as far back as 1884; but it was not till 1887 that this indefatigable collector succeeded in securing the two specimens mentioned above in the neighbouring Chalky Sound.

PSEUDOGERYGONE ALBOFRONTATA.

(CHATHAM-ISLAND WARBLER.)

Gerygone albofrontata, Gray; **Buller, Birds of New Zealand**, vol. i., p. 49.

OF this rare species, now on the borderland of extinction, if it has not already gone, I possess two specimens—male and female—for which I am indebted to Dr. H. O. Forbes, who obtained them during his last expedition to the Chatham Islands.

MIRO ALBIFRONS.

(SOUTH-ISLAND ROBIN.)

Miro albifrons (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 36.**

THERE was a time when the sprightly Wood Robin was one of the commonest birds in the South Island. What is the position now? It is told in the following letter from the facile pen of my friend, Mr. W. W. Smith, of Ashburton (under date of August 15th, 1903):—

The Wood Robin (*Miro albifrons*)—the settler's familiar companion of the olden time—is now almost extinct and is very rarely seen. The Bush Wren and the Rifleman also disappear with the vanishing bush. On the more densely bush-clad spurs and valleys, clothed with lighter bush in the Alford Forest and Springburn districts, their feeble notes are occasionally heard. During a trip through that district, in April last, I was charmed and surprised to see numbers of the Makomako or Bell-bird (*Anthornis melanura*). They chiefly inhabited the denser bush-clad spurs, which, alas, are the only remnants now remaining of these magnificent native forests of twenty years ago! The Tui (*Prosthemadera novæ-zealandiæ*) and the Kaka (*Nestor meridionalis*) have become rare in the district, while the magnificent native Pigeon (*Carpophaga novæ-zealandiæ*) is extremely so. The graceful Fantail (*Rhipidura flabellifera*) and the sprightly Tom-tit (*Myiomoira macrocephala*) flit plentifully on the outskirts of the rapidly vanishing forest. These species do not diminish appreciably, and they are invariably the first to offer welcome greetings to visitors entering the bush. The Weka (*Ocydromus australis*) is now represented by one-eighth of the number existing when the early settlers arrived and bought or leased extensive areas of the forest and the rich swamps extending for many miles along its outskirts. The Utick (*Sphenæacus punctatus*) and the beautiful Swamp-hen (*Porphyrio melanonotus*) were then very abundant. In the autumn, and during the finer months of winter, it was a charming picture of bird-life to observe a large troop of these latter birds feeding peacefully and unmolested in the shallow parts of the swamp. The pleasant calls of the Uticks in the summer evenings, as they moved rapidly through the dense vegetation of the swamps, were also a daily delight to the ornithologist. The lower echo-like call of these reed-loving birds is peculiar to the nesting period, and differs much from the loud calls during the summer and autumn, when they hail each other from all parts of the swamp. It is a rapidly vanishing species, and disappears apace as agricultural settlement advances.

You will sincerely regret the foregoing observations on the species of birds named. They are, nevertheless, accurate fulfilments of your predictions on the fate of many species given in both editions of your book. Since the destruction of the magnificent native forests and the removal of the dense tussock grass that formerly clothed the Canterbury plains, the climate of Canterbury is much colder, and, therefore, more uncongenial to the native birds. The hailing calls of the Weka from all directions after sundown, and the melodious notes of the Makomako from the beautiful forests, after sunrise, are now sincerely missed by lovers of Nature and the early settlers who formerly enjoyed the singing of the choir of sylvan minstrels.

A dry, warm summer is more conducive to the well-being of the native birds than the cool wet summers we have experienced for several years. After a succession of three hot, dry summers experienced from 1894 to 1897, the Tui and Makomako were more numerous than they had been for some years previous. Since 1899 their numbers have greatly decreased, which will continue owing to the exceptionally cold winter we have lately passed through, and until the seasons become warmer and more congenial to their habits.

When you return to New Zealand and view the wanton destruction and wreck of many of the grand old primæval forests existing in your boyhood days, you will rejoice that your history of the 'Birds of New Zealand' was written while they were in their primæval beauty and grandeur, and while the unique native birds flourished in their peaceful glades. Fortunately for science and coming generations, your valued work was written amid these harmonious scenes of bird-life in early New Zealand. Mr. Keuleman's work, associated with your own, which so richly embellishes your 'History,' will also be more valued when many

of these scenes and many of the species of native birds have wholly vanished from the earth. I never visit the remaining vestiges of these once beautiful old forests without experiencing feelings of profound regret for their ruthless destruction and for the inevitable fate of many of the native birds that adorned their precincts. It would now be a rare occurrence in the South Island, east of the Alps, to observe numbers of the honey-eating Tuis and Korimakos regaling themselves as formerly on the melliferous flowers of the kowhai (*Sophora tetraptera*) in early spring, or on the masses of crimson rata blossoms (*Metrosideros robusta*) in the autumn. These species of birds continue in good numbers in some parts of the great forests of Westland, where the echo of the bushman's axe has not yet been heard, nor the climatic conditions so modified as to seriously affect their well-being. But it is only a question of time. When the destruction of the native forests of the west, and the inevitable modification of the climate invariably following their destruction occurs, the same melancholy fate will overtake the native birds inhabiting them, as it has done in many other parts of the islands. Increasingly colder and more changeful seasons, which invariably follow the clearing and destruction of the primæval forests in New Zealand, are now unquestionably the chief causes of the rapidly diminishing numbers of some species of native birds and the extinction of others.

The Robin is very inquisitive in its disposition, and I have often attracted it by scratching with a stick among the dead leaves on the surface of the ground. The bird will come flying up, by short stages, and will then stand, almost bolt upright, at a short distance, watching the operation with the utmost gravity. It is also amusing to witness the excitement of this bird, on seeing a lighted match on the ground. It will at once fly up to it and, after hopping round for a few seconds, proceed to put it out by pecking at it with its bill. The West Coast diggers have a trick of lighting a few matches in a heap, and then withdrawing a few steps to watch the operations of the Robin. Sometimes a lighted match will stick to the bill and cause a burn, which only adds to the wonder and excitement of the bird. This peculiarity of character is known to all those who have lived much in the bush.

A correspondent, writing over the initials "S. D. B.," sends the following to the *Lyttelton Times* of April 24th: "A very interesting case, showing the usefulness of a purely insectivorous bird, came under my notice the other day, and is, I think, worthy of record. A friend was showing me his vinery, and I was astonished to see in it a tame Robin (*Miro albifrons*) following him about in its characteristic fearless manner. The bird was in as perfect plumage as if in its native bush, although now quite domiciled in the greenhouse, which it keeps free from insect-life without injuring the vines or grapes. I was informed that the Robin occasionally gets out into the garden, but is then easily induced to return to the vinery, which is, of course, kept locked when the owner is away. I asked if it did not want a mate, but was told that these birds are very pugnacious, and would fight like gamecocks if shut up together. Certainly this fellow seemed quite happy by himself."

A partial albino received from Canterbury has the back and under-parts entirely white; the rest of the body-plumage slaty-black and white intermixed irregularly; quills and tail-feathers normal. Bill bright yellow; legs darker yellow.

The last nest of this species examined by me was a massive structure, measuring on the outside 6 in. by 7 in., and composed of dry moss, leaves, and wiry stems, well pressed together. It had a round and rather deep cup, about 3.5 in. in diameter, lined with soft vegetable fibres, dry leaves, &c.

ORDER PASSERIFORMES.]

[FAMILY MUSCICAPIDÆ.

MIRO AUSTRALIS.
(NORTH-ISLAND ROBIN.)

Miro australis (Sparrm.), **Buller, Birds of New Zealand, vol. i., p. 33.**

MR. J. C. M'LEAN reports, from Gisborne, that on November 20th, 1889, he found a nest of this Robin, containing three fresh eggs, in the fork of a lily-palm (*Cordyline australis*)



THE LAST-KNOWN RESORT OF THE NORTH-ISLAND ROBIN.

in thick manuka-scrub. In the same strip of manuka he found two more nests, in each of which the eggs had been destroyed, for which, he states with certainty, rats were responsible.

I have a mournful satisfaction in recording that the last heard-of pair of this expiring species was seen, just before I left the Colony, in 1898, in the fringe of bush on the northern side of the Papaitonga Lake, where, of course, they would receive the hospitality and protection extended to all native birds desiring to establish a home there.

It was in this same spot that I discovered, some years ago, as fully recorded at the time,* the carnivorous properties of *Aseroe rubra*, a bright, flower-like fungus, which emits a fœtid odour, and secretes, in its surface cup, a viscid fluid, by means of which flies, moths, and other insects are entrapped and absorbed into the system of the plant, after the manner of the well-known *Drosera*.

The birds were unmolested, and therefore had every chance; but whether they have left any descendants or not it is, of course, impossible to say. All I can do now is to give a picture of their last home from one of my daughter's photographs.

In the old days it would have been impossible to enter such a wood without hearing the strident note of this Robin on all sides.

Now let the reader turn to page 34 of my Second Edition (vol. i.), and he will see how characteristic this bird was, as late as 1866, of the great silent forest around Mount Egmont. So completely has the species disappeared, that one might spend months in these extensive woods now or, indeed, traverse the forest zone from north to south, without ever hearing its note. It lingers still on the wooded islands in the Hauraki Gulf and on Kapiti Island in Cook Strait; and it is said to occur on the wooded parts of Whale Island, off the East Coast.

ORDER PASSERIFORMES.]

[FAMILY MUSCICAPIDÆ.]

MIRO BULLERI.

(ALPINE ROBIN.)

Miro bulleri, Sharpe, 'History of the Bird-collection in the British Museum' (1905).

AFTER a careful investigation of the subject, and a comparison of a large number of specimens, I arrived at the conclusion that there were in reality three forms of Wood Robin in New Zealand, all, of course, descendants from a common stock, but now sufficiently differentiated to bear distinctive specific names. I took an early opportunity of communicating my results to the Wellington Philosophical Society.† The North Island bird was the first to be recorded. This is *Miro australis*, formerly the commonest species in our woods and now almost, if not entirely, extinct on the mainland, but to be met with on the Little Barrier Island at the north, on the Island of Kapiti in Cook Strait, and probably on other outlying islands near our coasts. The two other forms belong to the South Island, and have hitherto been confounded under the general term *Miro albifrons*.

Mr. G. R. Gray, in the "Voyage of the 'Erebus' and 'Terror'" Birds, p. 7), thus describes *Miro albifrons*: "Upper surface and forepart of neck sooty-black; under-surface pale-rufescent; front with a small spot of white. Length 7 in." This is the *Turdus albifrons* of Gmelin (Syst. Nat., p. 822).

* *Trans. N.Z. Inst.*, vol. xxv., pp. 302-4.

† *Idem*, vol. xxviii., pp. 337-39.

That description exactly fits the examples one generally meets with in collections of New Zealand birds. But Mr. Gray's description does not accord with the coloured figure which he gives of the bird. Referring to this figure, in my account of the species (vol. i., p. 36), I said: "The figure of this species in the 'Voyage of the "Erebus" and "Terror"' is incorrect, on account of the exaggerated extent of white on the under-parts; but the attitude is a very characteristic one." It seems pretty clear, therefore, that the description and the figure represent different birds.

After diagnosing *Miro albifrons*, as quoted above, Mr. Gray says: "The original of this description is contained among the drawings of Forster, and it is very like *Petroica longipes*, Garn. (= *Miro australis*). The figure of Forster differs, however, from the bird referred to by the white extending from the forepart of the breast to the base of the tail, leaving the throat of the same colour as the back. I have subjoined a figure, for the purpose of making known the original drawing from which Latham took his description, that it may assist in elucidating the species should it hereafter be discovered."

Now as to the other form, of which I have obtained about a dozen specimens, collected in the high-wooded country known as the Karamea Saddle. This bird can be distinguished at a glance from *Miro australis*, and Gray's figure suits it fairly well. It is appreciably larger than the last-named species, and, instead of having the abdomen white as in that bird, or the under-parts rufescent as in *Miro albifrons*, it has almost the entire under-surface of a pale lemon-yellow. The frontal spot, too, instead of being very small, as described by Mr. Gray, is even more conspicuous than in the North Island bird.

Writing of *Miro albifrons* Mr. Gray says: "It may eventually prove to be the same species as *M. longipes* (= *M. australis*)"; and in my own account of this form (*op. cit.*, p. 36) I remarked: "My collection contains a specimen from Christchurch, in which the whole plumage is suffused with brown, and the under-parts are smoky-grey instead of being white." I have since received an example from Otago which is scarcely distinguishable from ordinary specimens of *Miro australis*.

On a review of all the facts I am disposed to define the group thus:—

Miro australis, Sparrm. North Island form; with under-parts, within very narrow abdominal limits, pure white.

Miro albifrons, Gmelin. South Island form; with under-parts rufescent, the colour spread over a wider surface.

Miro bulleri, Sharpe. Another South Island form; with almost the entire under-surface pale lemon-yellow. Conspicuous spot of white on forehead.

Female.—Similar to the male, but a trifle smaller, and paler in plumage.

I was at first inclined to separate the second South Island form as *Miro ochrotarsus* (Forster), described as *Turdus ochrotarsus* in the 'Descriptiones Animalium' (p. 82, 1844); but my friend, Dr. Sharpe, who has recently described Forster's 'Drawings' in the 'History of the Bird-collection in the British Museum,' points out that Gmelin's name of *albifrons* is founded on the 'White-fronted Thrush,' of Latham (Gen. Syn., vi., part i., p. 71), which was described from a specimen in Sir Joseph Banks' collection from 'Dusky Bay.' Forster's drawing is taken from a specimen procured at Dusky Bay, on March 28th, 1773, and, as Dr. Sharpe points out, there cannot be the slightest doubt that Forster's *Turdus ochrotarsus* is founded on the identical specimen as Gmelin's *Turdus albifrons*, and becomes a pure synonym. Dr. Sharpe has therefore given the name of *Miro bulleri* to the bird which I believed to be *M. ochrotarsus* (Forster).

MIRO TRAVERSI.

(CHATHAM-ISLAND ROBIN.)

Miro traversi, Buller, Birds of New Zealand, 1st ed., p. 123 (1872).

I HAVE in my collection a series of specimens, obtained at the Snares, where this bird is said to be comparatively numerous. Now, it is a very curious circumstance that this bird is not found on the Auckland Islands, nor on Antipodes Island, nor on Campbell Island, nor on the Bounty Islands. It occurs on the Chatham Islands, and on Pitt's Island, adjacent thereto, but it has never been met with in New Zealand. The set of the sea-current is from the Snares to the Chatham Islands, as was shown in the case of the barque 'Assaye,' which was totally wrecked by being driven upon the Snares, whilst a portion of her wreckage was washed up, two months later, on the Chathams. This bird possesses very indifferent powers of flight, and its distribution between places so far apart must have been accomplished by the accidental floatage of a great mass of timber-growth or island *débris* of some sort.

The sexes are absolutely alike in plumage. The young differs from the adult only in its duller plumage. On close examination it will be seen that the plumage of the upper surface is marked transversely by extremely minute bars of brown, so small, indeed, as to be almost microscopic.

MIRO DANNEFORDI.

(SNARES-ISLAND ROBIN.)

Miro dannefordi, Rothschild, Nov. Zool., i., p. 688 (1894).

MR. WALTER ROTHSCHILD has characterised the bird from the Snares as a distinct species under the name of *Miro dannefordi*;* but Dr. Finsch, who received a specimen from Mr. Reischek, identified it with *Miro traversi*. He writes ('Ibis,' 1888, p. 308): "One male of this uniform black species, hitherto known only from the Chatham Islands, and agreeing in every respect with specimens from that locality."

I am very much in doubt about the propriety of separating this form, as a species, from *Miro traversi* of the Chatham Islands; but I do not wish to disallow, without further enquiry, a species set up by so careful a naturalist as Mr. Walter Rothschild.

All I am inclined to admit to the Snares bird, is the rank of a local race or so-called sub-species.

* In characterising this bird as a new species ('Nov. Zool.,' vol. i., p. 688), Mr. Rothschild says: "When receiving, among many other birds, a large series of uniform black *Miro* from the Snares Islands, I was first struck by their beautiful glossy black plumage, which I had not seen in this series of *Miro traversi* (Buller) from the Chatham Islands, collected by Henry Palmer and W. Hawkins. On comparing these birds I found that the *Miro* from the Snares was *constantly* (I can say this because I have before me over twenty specimens of each) of a deeper and more glossy black than this rather brownish-black *Miro traversi* from Mangare and Little Mangare, Chatham Islands, that the former was smaller, and, above all, that its first primary was constantly not much smaller and narrower, being less or equal to half the second primary, while in *M. traversi* it is longer than half the second. I therefore do not hesitate to distinguish the Snares bird as a new species, which I name after the collector, *Miro dannefordi*."

RHIPIDURA FLABELLIFERA.

(PIED FANTAIL.)

Rhipidura flabellifera (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 69.**

IN October, 1880, during a storm-bound visit to Motutaiko, in the Taupo Lake, I found the nest of this species, with four eggs in it, secured very neatly to a twig of kawakawa (*Piper excelsum*), a tree to which, as I have observed, the Fantail is very partial for nesting purposes. We had made our camp-fire immediately under the nest before discovering it, and, although we remained there several hours, the birds did not appear to be in any way inconvenienced by the volume of smoke that came from the drift-wood fire, and enveloped them completely from time to time. Both sexes incubate in turn. There could be no mistake in this observation, because one of the birds had lost its tail, and could be readily distinguished from the other.

One has to speak of so many of our species as decreasing, or as having reached the border land of extinction, that it is quite refreshing to be able to record that the Fantailed Flycatcher—that pretty little denizen of our woods—is perhaps more plentiful than ever; at any rate it shows no sign of diminution. Mr. Robert Mair, writing to me from Whangarei on September 11th, says: “I saw a pleasing sight a few weeks since. There are generally five or six Fantails flitting about our shrubbery in the evening, catching gnats in the air and diverting one by their fantastic aerial evolutions. But on this particular evening I counted no less than twenty-five of them at one time.”

I never see this little bird, or hear its “laugh,” without being reminded of the romantic Maori myth of Maui’s disaster, which brought death into the world, when Hinenuitepo, awakened by the merriment of the Tiwaiwaka, closed her mouth and put an end to Maui’s ambitious dream of conquering man’s last enemy. The story has been well told by Sir George Grey in his “Polynesian Mythology.”

A writer in the *Field* newspaper, of August 20th, 1881 (p. 279), under the head of ‘New Zealand Ornithology,’ says: “There is an Owl called Morepork, so named after its cry; and I must not forget the Pi-wakawaka, a little pied-brown bird, belonging to the Fantail Flycatchers, a pair of which generally attach themselves to the wayfarer in the bush, fluttering close to him the whole day. Colonists come to love him, and the Maoris have many quaint superstitions about him. An old Maori once said to me: ‘Ah! they are little spirits that come to see what man is doing by day and go back to tell God at night. To-morrow they will say: “We saw the pakeha and the Maori together in the bush; they ate of the same and drank of the same, and they slept together in one blanket like brothers”; and God will say it is good.’”

I have already recorded pretty fully the nesting habits of this fairy Flycatcher (vol. i., pp. 70-71). During the pairing season the birds have a habit of often sitting together on the



nest, one covering the other, as if to make the most of each other's society. When alarmed, the male bird will invariably assume this position, as if to shield his mate from danger. This domestic incident is well shown in the accompanying illustration, for which I am indebted to the proprietors of the *New Zealand Graphic*, where it first appeared. In this instance the presence of the photographer, with his camera, was the cause of the alarm.

ORDER PASSERIFORMES.]

[FAMILY MUSCICAPIDÆ.]

RHIPIDURA FULIGINOSA.

(BLACK FANTAIL.)

Rhipidura fuliginosa (Sparrm.), Buller, *Birds of New Zealand*, vol. i., p. 72.

It is interesting to note that this Southern species is by degrees becoming an inhabitant of the North Island. I have previously recorded the known instances of its occurrence in the Wellington district. Of late years one has almost constantly frequented my garden on the Terrace at Wellington.

At Papaitonga I was much pleased to see one of these birds, in fine condition, in a clump of native bush near the homestead. It was associating with the Pied Fantail, which is particularly numerous in that locality. It was appreciably larger in size, and was in beautiful plumage, the white ear-spots being very conspicuous.

Mr. J. C. McLean, of Gisborne, in the 'Ibis' for January, 1894, gives an interesting account of the interbreeding in that district of a female bird of this species with a male of *Rhipidura flabellifera*. There were two eggs in the nest taken, and Mr. McLean thinks they are richer in colour than the ordinary egg of the Pied Fantail, "the spots being of a purplish tint, while in the eggs of the pied bird they are brownish."

At Half-moon Bay (Stewart Island) I saw a Black Fantail paired with a Pied Fantail, the former looking, as it moved about among the twigs on the roadside, half as large again as its mate. *Rhipidura flabellifera* is the common species on the island, there being only stray individuals of the black form.

I received an example (in spirits) from the Snares.

In a large collection of birds from the Chatham Islands received in England there were many specimens of *R. flabellifera*, but none of this species.

Mr. A. Hamilton obtained a specimen in the Pohue Bush, about twenty miles north of Napier; and at a later date two or three in the Horokiwi District, near Wellington.

On two occasions, on my last visit to the Buller Valley, I saw a Black Fantail paired with the other species. Mr. Potts has recorded several instances of this kind (see vol. i., p. 73). But, as Captain Hutton has reminded me, there is no record yet of the bird in hybrid plumage.

Mr. Potts records, in the 'Zoologist,' that during many weeks of autumn one of these birds entered the rooms freely, and often alighted on persons, or on a newspaper whilst

being read, sometimes perching on a low fender in front of the fire. Apart from this intimacy of conduct within the house, it would also perch on persons out of doors in a most confident manner.

A "union nest" of the two species of Fantail preserved in the Canterbury Museum has a peculiar appearance, being fixed horizontally in a forked branch, instead of having its pointed end downwards. It is very beautifully finished, the whole of the exterior being bound with fine cobwebs. The cup is deep and perfectly round, closely lined with extremely narrow grass stems, disposed in a circular fashion, and the edges are skilfully finished off.

I have recorded several instances of the occurrence of this South Island species in various parts of the North Island, the city of Auckland being the furthest limit. But in a letter received from Major Mair, writing from Rawene, Hokianga, and dated as lately as June 6th, 1905, he says: "Strolling through a kahikatea bush here the other day I saw a very fine specimen of the Black Fantail—only the third example I have seen in the North Island. I remarked, as I have before, on the amplitude of tail exhibited by this species as compared with the common bird."

ORDER PASSERIFORMES.]

[FAMILY CAMPOPHAGIDÆ.]

GRAUCALUS MELANOPS.

(AUSTRALIAN SHRIKE.)

Graucalus melanops (Latham), **Buller, Birds of New Zealand, vol. i., p. 66.**

To the already recorded instances of the occurrence of this Australian species in New Zealand I have since added another on the authority of Mr. William Townson, who writes to me that one of these birds was shot near Bradshaw's Creek, at Westport, some years previously, and came into Dr. Gaze's possession. Unfortunately, the skin was ultimately destroyed by moths.

ORDER PASSERIFORMES.]

[FAMILY TIMELIIDÆ.]

CLITONYX ALBICAPILLA.

(WHITE-HEAD.)

Clitonyx albicapilla (Lesson), **Buller, Birds of New Zealand, vol. i., p. 53.**

THE very name of this bird irresistibly carries my mind back fifty years and more to the happy days of youth on the banks of the Northern Wairoa. At the present time that river presents the unique feature of a deep fringe of Weeping Willows, on both banks,

during the whole of its tortuous course, these willows being the descendants of trees planted at the Mission Station, far up the river, by the writer's father, before the year 1840. The banks of the river are muddy at low water, and the twigs and branches broken off by the rushing stream, borne up or down by the successive daily tides, are deposited somewhere, and forthwith take root, and finally grow into trees. This process has been going on all these years, and the effect of these self-planted fringes is highly picturesque. At the time I speak of, however, the banks were clothed, almost to the water's edge, with native vegetation, and in all the ancient Maori clearings there was, not far from the river, a belt of tupakihi, makomako, and other native shrubs, which swarmed with small birds of all kinds, chiefly Parrakeets, Korimakos, and White-heads. The last-named was certainly at that time the commonest bird of the country, its cheerful, chirping note being heard on every hand, whilst its nest might be confidently looked for in every suitable clump of undergrowth. Now the banks are silent, and the White-head has gone! You may wander for miles through the forest and never hear its once familiar note. It is impossible to assign any sufficient reason for the disappearance of a bird whose food consisted of insect life, which still abounds in the woods; for, although the White-head was sometimes taken on the *tuke* snare, attracted by the tawhiwhi flowers, it was probably the minute insects frequenting the flowers rather than the honey that it was in quest of.

A few years ago, accompanied by my son, Percy, I made an expedition into the wooded ranges at the back of Waikanae in quest of Huias. We were disappointed in the object of our search, but after tramping on foot over some ten miles of bush-paths we were rewarded by finding a pair of Popokatea, or White-heads, positively the only ones I had even heard of on the mainland for a period of ten years or more. I brought down both with a small charge of dust-shot, and they made good specimens.

Later on I met with the species again in the same locality, and obtained several specimens; but here the bird had changed its habits, and was frequenting the lofty tree-tops instead of the low undergrowth. I can remember when this bird was absolutely the commonest and most numerous species in the North Island. It is now one of the rarest, being met with only on the Little Barrier Island, in the north, and on Kapiti, in Cook Strait. Another bird equally common was the Wood Robin (*Miro australis*), and this has disappeared just as completely, my last specimen having been shot at Kaitoke in the spring of 1880.

I was glad, still later on, to announce, at a meeting of the Wellington Philosophical Society, the appearance of a pair of this now rare species in the bush on the northern shore of the Papaitonga Lake.*

It is satisfactory to find that other observers have met with it also further north.

Mr. J. C. McLean reports ('Ibis,' 1892, p. 251) that on September 3rd, 1889, he came upon a flock of eight or ten White-heads in the thick manuka scrub at the Lagoon, on the East Coast; and that, while having his lunch under some large kowhai trees, he observed a single White-head hunting in the tree-tops, now and then stopping to sing a pleasant little song of half-a-dozen quickly repeated notes. He adds: "On July 29th, 1890, while shooting in the same district, I saw a flock of White-heads on a manuka flat, and shot male and female. They were feeding in the trees among the creepers, mingled with a flock of Blight-

* Professor Newton accepts my suggestion that the disappearance of the White-head and some other New Zealand Passeres is, in a large measure, a displacement due to the introduction of exotic birds, which, being morphologically higher and constitutionally stronger, speedily establish themselves at the expense of the lower, weaker, and earlier forms ('Dictionary of Birds,' p. 1037).

birds (*Zosterops cerulescens*), continuously on the move, flying from tree to tree, and feeding in all possible positions; they chattered and called to each other, while occasionally one came to look at us in an inquisitive manner. Half a mile further on I shot a male White-head from a flock of about twelve individuals in the edge of the bush; they were moving forward in search of food in the tops of the smaller trees."

Judge Mair, writing to me from Taumarunui on November 30th, 1903, says: "A few days ago I ascended the totara and matai-covered range on the north side of the valley to get a peep at Tongariro and Ruapehu, and there I saw a Popokatea—the first for perhaps thirty-five years."

The common native names are Popokatea and Upokotea. But on the East Coast it is called Tataeko and Tataeto—"he ta tataeto"—a flock of White-heads.

ORDER PASSERIFORMES.]

[FAMILY TIMELIIDÆ.

CLITONYX OCHROCEPHALA

(YELLOW-HEAD.)

Clitonyx ochrocephala (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 56.**

THIS bird has a most musical whistle, several times repeated. I shot several of them at Preservation Inlet in January, and, on dissecting a male, found the testes enormously developed.

I have never heard of the occurrence of this species in the North Island; but it is possible that the following passage in a letter received from Major Mair, in 1902 refers to it: "Going up the Whanganui River in March last, I saw what to me was a new bird. Just above Manganuiateao, on a twig across the mouth of a cleft in the rocks, there sat a bright yellow little bird which, to the best of my recollection, was about the size of a Hen Sparrow."

A nest obtained at Okarita is very similar in form and construction to that of *Clitonyx albigapilla*, but is somewhat coarser. It is composed almost entirely of dry mosses, and is neatly lined with grass bents.

BOWDLERIA* PUNCTATA

(FERN-BIRD.)

Sphenæacus punctatus (Quoy & Gaim.), **Buller, Birds of New Zealand, vol. i., p. 59.**

MR. ROBERTS, of the Government Survey Staff, met with this species in considerable numbers on Open Beach Island, five miles from the mainland, inhabiting the low scrub.

The female is somewhat smaller than the male; in other respects the sexes are precisely alike. Irides brown; bill dark slate colour; legs and feet light slate colour.

I have lately noticed, at Papaitonga, that this species has a habit of hopping over the ground to feed under the thick marsh vegetation. This may probably account for the usually abraded condition of the tail-feathers at the close of the season.

I have received a pair of Fern-birds from Stewart Island, which seem to represent a larger race than the one inhabiting the North and South Islands. In plumage it is precisely similar, except that the black spots on the breast appear to be more pronounced. These black markings become more conspicuous on the breast and sides, occupying the whole centre of the feather. The male gives the following measurements: Total length, 7.5 in.; wing from flexure, 2.75 in.; tail, 3.75 in.; bill, along the ridge, 0.5 in.; along the edge of lower mandible, 0.7 in.; tarsus, 0.9 in.; middle-toe and claw, 0.85 in.

Professor Hutton sends me the following note: "Last year I sent a specimen of *Sphenæacus punctatus* to Mr. F. E. Beddard for dissection. He now writes to me: 'I find that it is quite a typical Acromyodian Passerine bird, and that the position assigned to it in Sharpe's 'Cat. of Birds' in the British Museum is quite in accordance with its anatomical structure.'"

BOWDLERIA FULVA.

(FULVOUS FERN-BIRD.)

Sphenæacus fulvus, Gray; **Buller, Birds of New Zealand, vol. i., p. 61.**

Having examined further specimens of this species, I think that it ought be kept distinct, on the grounds indicated by Mr. G. R. Gray, but it is no doubt very closely related to *Sphenæacus punctatus*.

* The generic name of *Bowdleria* was instituted by Mr. Walter Rothschild, after considering the affinities of the African species of *Sphenæacus*, and comparing with the New Zealand birds. He writes: "While investigating these questions I found that only the New Zealand species of *Sphenæacus* have ten tail-feathers, the African ones not. The African species, besides having twelve tail-feathers, have the operculum over the nostrils bare of feathers, while it is feathered in the New Zealand ones; the outer webs of the tail-feathers are fuller and more connected, while they are very lax and separate in the species from New Zealand, and have a longer and stronger wing. There is, therefore, no doubt that *Sphenæacus* is not only placed wrong in the key given by Sharpe (Cat. B. Brit. Mus., vii., p. 93), but that it is more reasonably divided into two genera, as Sharpe would have done if he had counted the tail-feathers of the African *Sphenæacus*, and noticed the other differences. The generic name being founded on the African species, it becomes necessary to create a new name for the New Zealand group, which I propose to call *Bowdleria*, gen. nov., in remembrance of Dr. Bowdler Sharpe's invaluable *Catalogue of the Timeliidæ*" (Novit. Zool., iii., p. 539, 1896).

BOWDLERIA CAUDATA.

(SNARES FERN-BIRD.)

Sphenæacus caudatus, Buller, Trans. New Zealand Institute, vol. xxvii., p. 128. (1895.)

IN a collection of birds made for me by Mr. H. H. Travers, on a visit of the Government steamboat 'Hinemoa' to the various groups of islands adjacent to New Zealand, there were a good many specimens of a Fern-bird or "Utick," obtained by him on the Snares, a group of islets lying about seventy miles south of the southernmost extremity of New Zealand. I had hitherto referred this island-form to Mr. G. R. Gray's *Sphenæacus fulvus*. But the opportunity of examining so good a series (both of males and females) led me to investigate the subject further, and I was then satisfied that the species inhabiting the Snares is distinct.

Mr. G. R. Gray's description of *Sphenæacus fulvus* appeared in his very useful 'List of the Birds of New Zealand and the Adjacent Islands,' which came out in the 'Ibis' for 1862.

To commence with, his bird was from New Zealand; and, although no locality is given, it cannot have come from the Snares, inasmuch as there was no communication with those small islands at that time.

According to his description, *Sphenæacus fulvus*, although of "a rather larger size" than *Sphenæacus punctatus*, has a smaller bill and shorter tail. This is not the case with the bird from the Snares, which is altogether appreciably larger, the bill being more robust and the tail so conspicuously different that I have named the species from that feature; that is to say, instead of its being composed of Emu-like feathers with disunited barbs, the webs are closely set and compact, not differing in any way from the typical tail-feathers of the extensive family to which this genus belongs. Mr. Gray says of his bird that "the black streaks and dots are less pronounced than in *Sphenæacus punctatus*," which is not true of the present bird; and he adds that "the abdomen is white, more or less minutely dotted with black," a description which is equally inapplicable to this species. In Mr. Gray's bird the white superciliary streak is more pronounced than in *Sphenæacus punctatus*, in this species it is less so.

I thus distinguished the new form:—

BOWDLERIA CAUDATA, sp. nov.

♂ *ad.* similis *S. punctato*, sed paullo major; ubique lætiùs fulvens, plumis vix ita distinctè medialiter lineatis; pectore etiam minùs distincte maculato; remigibus rectricibusque ochraceo-fulvis; caudâ minùs acuminatâ, scapis plumarum haud nudis, sed omnino plumiferis. Long. alæ 2.75 poll., caudæ 3.5, rostri .5, tarsi .85.

♀ mari similis.

Hab. Inss. Snares, maris Novi-Zelandici.

The species appears to be intermediate between *Bowdleria punctata* of New Zealand and my *Bowdleria rufescens*, of the Chatham Islands; and its occurrence on the Snares is the more interesting as another inhabitant of these islets is the Chatham Island Robin (*Miro traversi*, Buller), which has never yet been found in New Zealand.

This is the *Sphenæacus fulvus* of my 'Birds in New Zealand' (2nd ed., vol. ii., p. 61).

The specimens therein referred to as having come from the south, without any locality being assigned, must, I now feel assured, have come from the Snares. They reached me through dealers, and it is almost impossible, in such cases, to obtain reliable particulars.

Mr. Reischek, who had collected examples of this bird on the Snares, informed me that he found it inhabiting trees rather than swamp-vegetation and fern-beds, like the New Zealand species. But it is evidently a ground feeder, for, on dissecting specimens received in the flesh, I was impressed by the marked development of the tibial and femoral muscles.

The following is a translation of Dr. Von Lorenz's notes on this species ('Annal. Hofm.,' vol. xvii., 1902):—

In addition to the specimen in Reischek's collection, I had an opportunity of comparing five skins from the Rothschild museum. The most striking differences in this species from *B. fulva* consist in the indistinct striping of the upper parts, in the colouring of the tail, the feathers of which have dark-brown centres, along the shaft, not black; in the darker colouring of the feet; and, finally, in the size of the bill and feet, which are noticeably stronger. . . . Buller remarks that the muscular system regulating the feet is most strikingly developed, an observation in full accordance with what may be inferred from the robustness of the legs and toes of the specimen now before me.

ORDER PASSERIFORMES.]

[FAMILY TIMELIIDÆ.

BOWDLERIA RUFESCENS.

(CHATHAM-ISLAND FERN-BIRD.)

Sphenœacus rufescens, Buller, Birds of New Zealand, vol. i., p. 62.

THE Hon. Walter Rothschild writes informing me that in the last collection of bird-skins recently received by him from the Chatham Islands there was a good series of this well-marked species.

At a later date, however, Mr. W. Hawkins, the well-known Chatham Island collector, wrote saying: "The Fern-Bird is extinct. I spent a fortnight on the island where they used to be, but never saw any sign whatever of them."

A collector also living on Pitt Island states that, partly through the firing of the low vegetation, and partly through the introduction of cats, which have run wild, this interesting species has become quite extinct.

Since the publication of my work I have only succeeded in obtaining a single specimen, and that I picked up at a dealer's shop in London.

There is a very good figure of this species (by Keulemans) in my first edition of the 'Birds of New Zealand,' fronting page 128.

There is in my son's possession a partial albino of this now extinct bird from the Chatham Islands.

TURNAGRA TANAGRA.

(NORTH-ISLAND THRUSH.)

Turnagra hectori, Buller, Birds of New Zealand, vol. i., p. 27.

I CONFESS that I relinquish the distinctive name of *Turnagra hectori* with regret; but when such a specific name, for example, as *Crex crex* or *Nycticorax nycticorax* meets with universal acceptance, in deference to the law of priority, my objection to such an unhappy combination as *Turnagra tanagra* loses much of its point. After all, this species is now practically a thing of the past, and it matters not much by what name it is distinguished.

As lately as February, 1902, Mr. W. T. Morpeth sent to the Auckland papers the description of a "new bird" he had shot in the Lower Ohura, in the southern part of the King Country. He stated that the natives did not appear to know its name, and that his object in writing was to get the bird identified. My attention having been called to the paragraph I immediately wrote to the *New Zealand Herald* as follows:—

There can be no doubt that the bird described is the Piopio, or native Thrush of the North Island. It differs specifically from the South Island Thrush (*Turnagra crassirostris*). It not only differs in plumage, but is of superior size, and has a more strongly developed bill. Many years ago it was described by me, and named *Turnagra hectori*, in compliment to Sir James Hector (see 'Ibis,' 1869, p. 39). The species has become almost extinct, although thirty years ago it was very common in the woods around Wellington and the Hutt. Further north it has always been extremely rare. I never met with or even heard of more than one specimen in the Auckland Province. This was shot by myself in the Tangihua woods (Kaipara District) in the summer of 1852—just fifty years ago! It was quite unknown to the natives of the district, but one old woman recognised it as the Korohea, saying that it was plentiful enough in the days of her girlhood.

Through the courtesy of Mr. J. D. Climie, District Surveyor, I received from the Makuri Ranges a fine specimen of this rare species, positively the first I had seen in the flesh for twenty years and more.

This bird measured 11.75 in. in length, the extent of wings being 16 in.

It is to be hoped that the Little Barrier Island having been acquired by the Government for the purposes of a "native birds' sanctuary," at least one pair of the North Island Thrush (which is easily caught when found) may be obtained, and liberated there, so as to save the species from ultimate extinction. I have heard from surveyors and others that it is occasionally met with (always in pairs) along the Hunterville line of road, and in the wooded district north of Wanganui.

The South-Island Thrush (*T. crassirostris*) is still comparatively plentiful in some parts of the West Coast, but its numbers have been grievously diminished by the diggers' dogs, and by wild cats, stoats, and weasels. The North Island bird has all but disappeared, and the specimen referred to above is the only one I have been able to obtain since the publication of 'The Birds of New Zealand' (2nd ed.) in 1888. Mr. C. Field, a Government surveyor, writing to me from Moawhango, Inland Patea, says: "I know of four places where the Piopio was to be found *seven years ago*. In the Turakina Valley, about five miles south of the Te Ruanui, we used to see them every week; also in the Mangamahu Valley, and about four miles from the last-mentioned place. At two different places in the Mangawhero Valley

they were to be found, and one of these localities was not more than two miles from Mason's house, but the other was far inland. In the Porewa, north of Hunterville, they were to be found at that time, and I believe some still remain. They were formerly so plentiful in the Turakina and Mangamahu Valley that I think it is likely a few might still be found there."

The last tidings I had of this expiring species in the Wellington District was contained in a letter from a friend on the Survey Staff (dated December, 1892), as follows: "There is a pair now frequenting the survey camp at Pongarua, in the Puketoi Range. They are constantly about, whistling in a sweet fashion, and, to my ear, mimicking the Tui and other birds."

ORDER PASSERIFORMES.]

[FAMILY TURDIDÆ.]

TURNAGRA CRASSIROSTRIS.

(SOUTH-ISLAND THRUSH.)

Turnagra crassirostris (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 31.**

THIS is a fast expiring species. One of its last places of refuge was Stephen Island, in Cook's Strait, where it was once so plentiful that a dozen might be caught in the course of a day by means of a noose at the end of a long stick. But the introduction of the domestic cat by the lighthouse keepers sealed the doom of this charming bird, and it is now seldom or never seen on the island. On my last visit to the Buller Gorge I saw one hopping about on the ground under shelter of the roadside vegetation, and foraging for worms and grubs, just as we see the English Thrush on our lawns in this country. It requires no prophetic vision to foresee the absolute extinction of this form in the near future. It will become a bird of the past, as its congener, *Turnagra tanagra*, already is in the North Island.

A caged specimen brought to me by Mr. Capper presents the abnormal feature of the whole of the middle portion of the tail being yellow, with a brown streak down the shaft of each feather.

I shot a specimen at the head of Dusky Sound. So far as I could see, the habits of this species differ in no respect from those of the North Island bird.

In the Colonial Museum there is a nest marked as being of this species, from Milford Sound. I cannot say whether this nest is correctly identified; but it is exactly like that of the Tui, being composed of slender twigs intermixed with kohukohu moss, and carefully lined inside with grass bents. It is quite circular, measuring about 7 in. in outside diameter at the top, and the cavity or cup is about 5 in. across.

In the Nelson Museum there is a nest of this species (from Stephen Island) measuring 7 in. by 5 in., and formed entirely of slender rootlets arranged in a circular form.

The cup, which is very shallow, is lined with dry grasses. There are two eggs in the collection referred to this species; one of these, about the identification of which I am in doubt, is pure white; the other is somewhat smaller, measuring 1.25 in. by .75 in., and is white with scattered brown spots and dots at the larger end.

A large cone-shaped structure fixed in the fork of a manuka tree (*Leptospermum scoparium*) which graces the collection of nests in the Canterbury Museum is assigned to this species. It is fully 10 in. in depth, with a width at the top of about 8 in., and is composed of small dry twigs and kohukohu moss pressed well together; its deep, round cup is lined with fine grass bents.

ORDER PASSERIFORMES.]

[FAMILY PARIDÆ.

CERTHIPARUS NOVÆ-ZEALANDIÆ

(NEW-ZEALAND CREEPER.)

Certhiparus novæ-zealandiæ, Lafresnaye; Buller, *Birds of New Zealand*, vol. i., p. 51.

THIS little bird loves to flit about among the tops of high trees, where its movements are very similar to those of *Pseudogerygone*.

The young does not differ from the adult, except that the colours of the plumage are somewhat duller and the tail shorter.

A nest of this species, from the Rangitata River, has a peculiar rounded, oval shape, and is composed of moss, small leaves, and fine, wiry twigs, compactly felted together, and presents a deep, well-finished cavity placed at one end of it, the edges being neatly finished off, and bound with cobweb.

In a communication to the 'Ibis' (July, 1903) Captain Hutton has proposed to change the generic name from *Certhiparus* to *Finschia* "in honour of Dr. Otto Finsch, so well known as an ornithologist, and one who has given us much help in New Zealand." His reason for this is thus stated:—

A re-examination of these forms has convinced me that Dr. Gadow is right in placing all three in the same family, but that Gray and Buller are correct in separating *C. novæ-zealandiæ* from the others generically; while I also agree with Lafresnaye and Finsch that *C. ochrocephalus* and *C. albicillus* cannot be kept in the same genus on account of the great differences in their legs and feet. So, in my opinion, each species should form a separate genus.

Next as to the names. The type of *Certhiparus* is *C. albicillus*, and this name must therefore be kept for that species. For *C. ochrocephalus* the oldest name is *Mohua* of Lesson (1837). Quoy and Gaimard had stated that the Maori name of this species is *Mohoua* (which, however, was a mistake), and Gray apparently altered the spelling to suit his own views. I see no good reason for dropping *Mohua* in favour of *Clitonyx*.

Whilst as anxious as Captain Hutton to do honour to Dr. Finsch, I fear I cannot

follow him in the proposed change. Notwithstanding the difference in the tarsi of the two birds, I have always contended that the White-head and Yellow-head should not be separated generically. I have placed them together in the genus *Clitonyx*, a view in which I am confirmed by Dr. Sharpe, who has followed that arrangement in his 'Handlist.'

The egg of this species is broadly oval; greyish-white, widely freckled with purplish-brown, the markings at the larger end assuming the form of a zone.

ORDER PASSERIFORMES.]

[FAMILY MELIPHAGIDÆ.

POGONORNIS CINCTA.
(STITCH-BIRD.)

***Pogonornis cincta* (Dubus), Buller, Birds of New Zealand, vol. i., p. 101.
(Native names: Hihi, Ihi, and Kotihe.)**

No doubt New Zealand has deservedly acquired a name all over the world for being the most progressive of our colonies. This fact will appeal more than anything else to the naturalist in the policy of acquiring, at whatever necessary public expenditure, suitable island-sanctuaries in which to preserve a remnant of our unique avifauna. One of these insular retreats is Hauturu, or the Little Barrier Island, about twelve square miles in extent, well wooded and beautifully situated in the Hauraki Gulf, about eleven and a half miles from Point Rodney. The freehold has been purchased from the Maoris, who were thus induced to quit possession, and the Government has placed a custodian on the island whose first duty is to protect and conserve the native fauna and flora. This little island is positively the last refuge of the Stitch-Bird (*Pogonornis cincta*), whilst both Korimakos and White-heads are still abundant there. This policy of conservation was initiated by the first Liberal Premier, Mr. Ballance, at the instigation of the Earl of Onslow, when Governor of New Zealand; and there can be no doubt that it is becoming increasingly popular with both races. Even the Legislature has shown a praiseworthy interest in what is being done in that direction. So far the experiment has been highly successful; but it would be interesting to carry it a step further. I remember urging upon Mr. Ballance that a few Huias, Piopios, and Kokakos should be taken alive, whilst that is still possible, and liberated on the island, all these birds being too weak-winged to escape to the mainland. Mr. Ballance fully agreed; but I fear this has not yet been seriously attempted.

Some years ago I had an opportunity of examining a large series of specimens of *Pogonornis* collected for Mr. Spencer on the Little Barrier Island before that last resort of this species came under Government protection. I observed that the young male has exactly similar plumage to that of the adult female, except that there is a broad spot of canary-yellow near the bend of the wing. When the first moult commences this expands into a conspicuous band on the humerus, after which there is a gradual change of the body-plumage. A female of this very rare species which recently came into my hands has a yellow tinge on the angle of the wings

and on the tips of the white secondary coverts. The specimen, which has been in a private collection at Auckland for some ten years, came originally from the Little Barrier Island. The indefatigable collector, Mr. A. Reischek, spent a considerable time on the Little Barrier, and shot a number of specimens for local and foreign museums, but I was assured by him that he did not destroy them all; and I do not think any collector has sojourned on the island since his time. There is therefore just a chance of saving the species by timely intervention.

An Auckland collector has more recently been on a visit, for a few hours only, to the Little Barrier Island for the purpose of getting specimens of this rare bird, several of which were obtained. This is the last refuge of the species, and unless the strong hand of the Government is invoked for its protection, and that at once, the Stitch-Bird will soon be lost to us for ever. Let us hope that steps will be taken to save the colony from this reproach.

ORDER PASSERIFORMES.]

[FAMILY MELIPHAGIDÆ.

ANTHORNIS MELANURA.
(KORIMAKO.)

Anthornis melanura (Sparrm.), Buller, *Birds of New Zealand*, vol. i., p. 85.

WHEN I undertook to write the history of our native birds, one of the chief objects I set before myself was to make the subject as attractive and instructive as possible to the rising generation of colonists. The 'Manual of the Birds of New Zealand,' which I brought out at a later date, with descriptive diagrams, &c., was prepared avowedly for that purpose. It was therefore with much pleasure that I recently received a letter from a prominent member of the House of Representatives, saying that he had urged upon the Government to republish, with my consent, the more important of the plates in the 'Birds of New Zealand,' for distribution among the public schools of the colony. I replied, of course, appreciatively, and in due time received an answer in which he said: "I read your letter with great interest, and am very glad to see that you are so much in sympathy with the movement to make our school children more familiar with the beautiful bird-life of this country. Your book has created a wide-spread interest in the subject. Indeed, I firmly believe that to your book is chiefly due the strong public feeling which has found practical expression in the efforts now being made to preserve, by means of special legislation, the unique bird-life of this country."

One of our best local observers, Mr. W. W. Smith, in a communication to the 'Ibis' (1893, pp. 509-21), writing more particularly of this species, expresses himself thus:—

Although the New Zealand avifauna is the most perfectly known division of our zoological province, new facts in the life-history of some of the species are occasionally presented to the ornithologist. Sir Walter Buller's charming delineations of bird-life in all its peculiar forms in New Zealand, together with Mr. Keulemans' exquisitely finished and life-like pictures of many species illustrating Buller's work, have produced an ever-increasing and lasting interest in our remarkable birds. If Mr. Keulemans had studied bird-life in forests

and lakes and sea-shores in New Zealand for many years he could not have depicted the birds in more natural positions or painted their haunts to greater perfection. In the individual history of most species Buller has left little of interest to be added; in others additional features in their habits will transpire as colonisation spreads and the country becomes more settled. Since the second edition of the 'Birds of New Zealand' in 1888, I have been able to gather additional notes on the habits of many species, some of which I now offer; I also add some observations on the causes of the extinction and gradual disappearance of certain native birds.

. . . . *Anthornis melanura*: The history of this delightful songster of the New Zealand bush is so perfectly given by Buller that nothing need be added to it here. The sudden disappearance of this species from many of its old haunts in the North Island, and the apparently inevitable extinction that similarly threatened it in the South Island were truly deplored by all naturalists. The causes, to which are attributed the gradual or rapid disappearance of certain species of New Zealand birds have been fully discussed by Buller; these include the probable effects of the introduced honey-bee on the habits of the *Meliphagidæ*, the changed environment produced by the perfect or imperfect clearing of open, swampy lands and forests, and the introduction of predatory animals. In discussing the various causes and their effects, he contended that the honey-bee theory was 'quite insufficient to meet the case,' and stated: 'As the result of long observation, I have come to the conclusion that apart from the effects produced by a gradual change in the physical condition of the country, the chief agent in this rapid destruction of certain species of native birds is the introduced Rat.' The forests on the eastern side of the South Island are of limited extent, and were the first to be worked or cut out by the colonists for building-timbers and fuel. The thinning and clearing of the smaller forests of many trees and shrubs bearing mellifluous flowers would appreciably affect the honey and insect supply of both meliphagous and insectivorous birds in a short space of time. To see a number of Korimakos in the spring months regaling themselves on the sweet flowers of the kowhai, ngaio, papauma, tawhiwhi, and manuka trees is one of the naturalist's charms of the year. But alas! from several districts, where only a few years ago those sylvan scenes were present, the forest flowers and the sweet song of the Korimako have vanished, and the flocks of the farmer now occupy their sites. The loss of the species affected is due to some general cause, and, with the able author of the 'Birds of New Zealand,' I implicitly agree that it is attributable to the ravages of Rats. There is no doubt that the Norway rat was introduced into New Zealand in the early days of colonisation, perhaps even in the earlier days of the visits of whalers to the South Seas, and that, there being no indigenous Mustelidæ or other natural enemies,* excepting the native Hawks, they multiplied in our genial climate at an astounding rate. Precisely the same thing is happening at the present time in the districts where the introduced Stoats and Weasels have been liberated to wage war against the Rabbits. They first turn their attention to, and appease their voracious appetites on, the easily captured native birds. A few instances showing the number and distribution of Rats in New Zealand may be of interest. About twenty-five years ago, when Peel Forest was first opened for timber-cutting, several of the bushmen afterwards informed me that wherever they pitched their tents or huts their stores were assailed in a few days by Rats. Mr. Eugene Lorgerie, an old resident in the forest, informed me once that he had shot a large Rat running along a high limb of a totara tree. But the most remarkable fact about the occurrence of Rats in remote places in the early days was illustrated during the gold fever on the West Coast. Amid great hardships the diggers penetrated into unknown regions in that great forest country in search of the precious metal; no matter where the hardy fellows went, up lonely rivers or wooded mountain spurs, they found themselves invariably preceded by the ubiquitous Rat, and the greatest precautions had to be taken to preserve their scanty supplies of food from the attacks of these animals. Rats are common everywhere in the Westland bush at the present time, and are unpleasantly numerous about many homesteads of the settlers on the Canterbury plains, and on all the Downs country under the main range. There are two unfortunate drawbacks to most species of native birds, namely, their exceeding tameness and their easily accessible nests. Before the advent of the Anglo-Saxon and his accompanying evils in New Zealand, the native birds had practically no enemies to contend with, and in many districts in the South Island peace and harmony had reigned in their domain for long ages. Hence their tameness, The honey-bee theory in its bearing on the disappearance of any of the native birds is, I am convinced, an utter fallacy.

* The native rat, *Mus exulans*, was purely frugivorous.

I have never seen any reason to alter or modify the views I put forward on this point in the 'Birds of New Zealand'; but at the same time it is only fair to give due weight to any reasonable objections to one's theory. The principal difficulties are formulated by myself in a paper read before the Wellington Philosophical Society, and, in the interests of truth, I will reproduce them.

At 7 p.m. on October 26th we left Tokanu for Tapuaebaruru in a four-oared boat, manned by a good crew of Armed Constabulary. It was a beautiful, calm day, and the surface of the lake was a perfect mirror. Five miles from land we could still hear the hollow boom of the Bittern, and the barking of the curs in the Maori village. There was not a breath of air to cause a ripple on the bosom of the lake, and the rock-bound margin of Motutaiko danced in the mirage of the morning sun. Our men were settling down to a long pull of twenty-five miles, and we had just arranged to make straight for Motutaiko and rest there for an *al fresco* lunch, when the seaman Todd, who was in charge of the crew, pointed to an advancing ripple from the southward; and, without a moment's warning, we were overtaken by a squall which increased in fury with amazing rapidity. Within the brief space of five minutes, instead of dreamily rowing on the placid waters, we were pitching and tossing in an angry sea—the rudder was powerless, and the oarsmen had the utmost difficulty in keeping the boat's head on. We shipped several heavy seas, and struggled on for hours, sometimes drifting, at others just holding our own, as the storm varied in force, the men all pulling with desperate strength, knowing that to relax for a moment meant swamping and destruction to us all; for the best swimmer could not long have survived a capsize in such a sea, and with the atmosphere and water so intensely cold. After some four hours of unflagging labour, a lull in the storm enabled us to get under the lee of Motutaiko; but half an hour after we had landed, in a little rocky cove on the western side of the island, the storm redoubled in force, and for some hours such a gale blew as had not been witnessed in the lake for years. The 'little white horses' of the sea chased each other in quick succession, and the spray rose in clouds as the wind swept over the tempestuous waters. Of course the first consideration on reaching land was a sense of gratitude at having escaped from a very perilous position; but I was delighted on landing to hear on all sides the silvery notes of the Korimako. As is well known, this little songster, which formerly was so abundant everywhere, has for a long time past been practically extinct in the North Island. At the time of this visit to Motutaiko it had not been heard of for several years on the mainland, although it was known to exist on certain islands off the coast, such as the Little Barrier in the Hauraki Gulf, and the island of Kapiti in Cook Strait; and the generally accepted theory had been that the chief factor in its extermination was the introduced Rat. That certainly was my own belief. But a fact now came to my knowledge which seemed to tell very much against that theory. It was this: the island on which I so unexpectedly met with the Bell-bird is famous for its Rats. It is covered with pohutukawa trees and koromiko scrub, and the whole island swarms with Rats. The ground is, in places, almost honeycombed with their burrows, for in one spot I counted no less than five holes within a radius of eighteen inches. So numerous were they that Topia Turoa had found it necessary to turn some cats adrift on the island to reduce their numbers before he could put in a crop of potatoes on one of the slopes; and wind-bound boats lying in the little sandy cove at night have, it is said, been invaded by multitudes of Rats and had all their provisions carried off.

Then, again, as to the Rat theory, it is a significant fact that, although the Korimako has disappeared from the North Island, it has continued to exist in the South Island, although in somewhat diminished numbers; and, so far as I am aware, the introduced Rat is as plentiful there as in the North. There may be destructive causes in operation of which we have no present knowledge.

Referring to the Korimako or Bell-bird, Lord Onslow, in his now famous memorandum to the Premier, says: "I would also, at the same time, suggest that Ministers should take into consideration the propriety of including some other native birds in the list of protected species. As I have already mentioned, the Bell-bird, formerly so plentiful, has entirely disappeared from the North Island. But it is still very plentiful all over the South Island, and is a common denizen of the gardens and shrubberies in all the principal towns. This is the bird that so enchanted Captain Cook and Sir Joseph Banks by its song when their ship lay at anchor in Queen Charlotte Sound more than a hundred years ago, and, having become historical, it would

be a grievous pity for the bird to die out altogether. The general testimony goes to show that the protection extended to the Tuis had the desired effect, this species being now more numerous everywhere than it was fifteen years ago. Would it not be well to extend the same protection to its small congener, the Korimako, whose haunts and habits are almost precisely similar?"

On February 15th last I shot a young Korimako on the summit of one of the lower ranges of the Tararua, at an elevation above the sea of 800 feet, about six miles in a direct line from Kapiti. I heard the sweet song of the adult, but did not actually see the bird. They were feeding on the flowers of the tawhiwhi or climbing rata (*Metrosideros scandens*), and, according to our Maori attendants, were visitors from Kapiti Island where, as already stated, this songster is still comparatively abundant.

Writing to me on July 17th, 1902, Captain Gilbert Mair says: "I forget whether I wrote telling you of two delightful trips to Whale Island. On the top of the island (1,280 feet) there is a most beautiful patch of bush of surprising variety, and there I was delighted to find a large number of Korimakos and a few Popokatea. This is probably due to the fact that the European proprietors do all they can to prevent trespassers landing on the island and disturbing the birds.

Mr. Robert Mair, writing to me from Whangarei, under date of September 11th, says: "I was out last week in a six-ton yacht hapuku-fishing at the Poor Knights, in the Hauraki Gulf. On the largest of the Poor Knights Islands there are numbers of Korimako. It was delightful to see them flying from bush to bush overhead, and to hear them singing their sweet notes." And, again, on October 6th, 1900, Mr. Robert Mair, says: "The Poor Knights Islands, $4\frac{1}{2}$ miles to the N.W. of Orangia, are of a different formation to anything I have yet seen in New Zealand. The cliffs rise sheer from the water nearly all round, and there is scarcely a spot to land on. The Korimakos are very numerous there. You see and hear them amongst the scrubby trees of these and the adjacent islets, and it is a very delightful reminiscence of the olden times."

From Mrs. Halcombe, a daughter of the celebrated ornithologist, the late William Swainson, F.R.S.,* I have received the following interesting note: "Bell-birds are very plentiful on the Island of Kapiti. I stayed there for nearly three weeks in 1894, and every morning, about four o'clock, I was charmed to hear a perfect concert from the Bell-bird. The house was quite close to a beautiful piece of bush, which was full of native birds, and, to judge from the noise they made, the Bell-birds must have been *very* numerous. . . . I have all the tastes of my dear father, but I have not had the chance to develop them. I cannot help loving all the beautiful world of Nature, and I wish I had the time and opportunity to study all her wonderful secrets. The longest lifetime, it seems to me, is all too short for the full enjoyment of her treasures."

I was delighted on my first visit to Stewart Island to find this bird as numerous as it formerly was in the North Island. It was very pleasant to hear its dulcet notes in the woods again. Some of them—especially the "cough"—are not to be distinguished from those of the Tui. My collector (Mr. Marklund) writes: "I took a run up Mount Anglian, but was caught in bad weather, and could not do much. I found the Tui and the Makomako at an elevation of 2,300 feet above the sea. It is a curious thing that scrub grows to 3,150 feet on Mount Anglian, whereas on Table Hill one loses all bush at 1,900 feet, and still the difference in latitude is so small."

* It was from Mr. Swainson that I received my earliest lessons in zoological drawing. He had long before published a beautiful series of "Zoological Illustrations" (1820-21). "All the figures were drawn by the author, who, as an ornithological artist, had no rival in his time. Every plate is not beyond criticism, but his worst drawings show more knowledge of bird-life than do the best of his English or French contemporaries" ('Dictionary of Birds,' p. 28)

At the Buller crossing—six miles from Westport—I found the Korimako, in 1898, very abundant.*

I have from time to time recorded albinos, more or less perfect, of this species; but there is in my son's collection a specimen in which the entire plumage is of a delicate olivaceous-yellow, the quills and tail-feathers being white with greyish webs. Bill and feet pale brown, instead of being respectively black and leaden-grey, as in the normal state.

In the Nelson Museum there is another beautiful yellow specimen. The whole of the body-plumage is pale canary-yellow; the quills and tail-feathers, which are white, have their outer webs marked with yellow; bill and feet yellowish-brown.

To the accidental varieties previously recorded, I have to add an albino received from Akaroa, the whole of the plumage being white, slightly tinged with golden-yellow.

The last specimen of a Korimako's nest, containing eggs, received by me, was sent to England recently by Mr. W. W. Smith. It was taken from the collection formed by his late son, Walter Valentine, a youth of high promise, who was an ardent student of New Zealand ornithology. It is a good typical specimen, but differs from all other examples I have seen in the character of its lining. Invariably the cup is lined with soft feathers, but in this instance the material exclusively used is the soft *pappus* found attached to the dry seed-vessels of the pikiarero, or native *Clematis*.

I lately had an opportunity of examining a collection of twenty-three eggs of this species, all from the South Island. I made the following notes: They vary only very slightly in size, but exhibit a considerable amount of variation in the markings. In most of them the ground-colour is white, in others it is suffused with a delicate blush of pink. Some have the larger end smeared and the rest of the surface irregularly spotted with rusty-brown; in others the brown markings form an indistinct zone; in some the brown is concentrated at the larger pole, the rest of the shell being entirely free from markings. In some specimens these markings are irregular, being streaky or blotchy; in others they are rounded dots, being more or less confluent at the pole. Their colour varies from a dull umber-brown to a warm reddish-brown. In a few of them the markings are distributed over the entire surface in the form of minute speckles, without any appearance of a zone or any congestion at the larger pole. Two that I selected for the purpose measured, respectively, 0.75 in. by 0.625 in. and 0.88 in. by 0.55 in., both being slightly pyriform.

I have seen an egg of this species conspicuously marked with scattered blotches of blackish-brown all over the surface.

Mr. Percy Smith, the late Surveyor-General, has sent me the following interesting note: "In Dr. Lesson's 'Voyage aux Iles Mangarewa' I have come across the following: In a list of eighteen birds, of which he gives the native names, he ends by saying, '*enfin le Komako, une espèce de Philedon qui ne quitte pas les lieux boisés.*' The resemblance of the name to our Komako or Korimako, together with its scientific name, being identical, would seem to prove that the Gambier Islands have a representative of our bird there. You have not noted the fact in your 'History,' so the information is probably new to you, and is of much interest."

Specimens of this bird from the Auckland Islands appear to be, as a rule, a trifle larger than New Zealand examples.

* In a letter received from Mr. W. W. Smith, a member of the New Zealand Scenery Preservation Commission (dated Pipiriki, January 23rd, 1905), that gentleman says: "In my last note to you I stated that we had not met with the Korimako during our travels in the North Island. While passing down the Wanganui River yesterday in a canoe, between Parau Pa and Pipiriki, we heard several singing charmingly in the magnificent forest clothing the banks of the great river. To-day we were on the Pipiriki and Raetiki road and again heard their rich notes in the beautiful primæval bush crossing the whole extent of country we travelled through."

Sir Joseph Banks says in his 'Journal' (p. 212): "Ship's Cove, Endeavour Inlet, January 17th, 1770: I was awakened by the singing of the birds ashore, from whence we are distant not a quarter of a mile. Their numbers were certainly very great. They seemed to strain their throats with emulation, and made, perhaps, the most melodious wild music I have ever heard, almost imitating small bells, but with the most tunable silver sound imaginable, to which, maybe, the distance was no small addition. On enquiring of our people, I was told that they had observed them ever since we had been here, and that they begin to sing about one or two in the morning and continue till sunrise, after which they are silent all day, like our nightingales."

(Korimakos must have changed their habits, for they have never sung at one or two in the morning in my time!)

Mr. A. H. Turnbull, of Wellington, writing to me on January 9th, 1902, says: "I spent a week at Christmas in Queen Charlotte Sound, cruising about that beautiful arm of the sea in my yacht *Iorangi*. I was on the tracks of Captain Cook, and enjoyed myself thoroughly. Amongst other things, I was anxious to verify Professor Morris's statement that no Bell-birds now existed at Ship's Cove. Alas! he was quite correct! We rose at just before dawn—not a note to be heard of that music which so charmed Cook and his companions! I am pleased to say, however, that we observed Bell-birds at Grass Cove, on Arapawa Island, which forms the eastern side of the Sound. We got up at about 3.30 a.m., and heard the birds tolling loudly. The singing was magnificent, and the still morning air fairly throbbled with it. The settlers' explanation of why none of these birds are found on the mainland is that the stoats and weasels have destroyed them, whereas there are, as yet, none of these vermin on the Arapawa Island."

ORDER PASSERIFORMES.]

[FAMILY MELIPHAGIDÆ.]

ANTHORNIS MELANOCEPHALA.

(CHATHAM-ISLAND BELL-BIRD.)

Anthornis melanocephala, Gray; **Buller, Birds of New Zealand**, vol. i., p. 92.

I HAVE been fortunate enough to obtain some beautiful examples of this species from the Chatham Islands; but, according to all accounts, the bird is very nearly extinct there.

As far back as 1896, the late Mr. Hawkins wrote to me: "This bird, too, has very nearly disappeared. I have no difficulty in selling the skins for £1 a-piece; so I have sought diligently for them, but it is very difficult to get any of them now."

In the Colonial Museum there is a specimen of the nest from the Chatham Islands. It is a peculiar structure, being perfectly round or cup-shaped, with a very wide and deep cavity. It measures about five inches in diameter and is almost entirely composed of dry grass leaves intermixed with wiry stems. The cavity, which is about two and a half inches deep, is lined with sheeps' wool and a few feathers.

In the Canterbury Museum there is a nest, assigned to this species, which is very different in appearance to that described above. It is composed of fine wiry twigs and grass stems, loosely put together, with a capacious cup, carefully lined with grass leaves.

PROSTHEMADERA NOVÆ-ZEALANDIÆ.

(TUI OR PARSON-BIRD.)

Prothemadera novæ-zealandiæ (Gmelin), **Buller, Birds of New Zealand, vol. i., p. 94.**

I CONSIDER it one of the principal charms of my country home at Papaitonga that the Tui is very plentiful there, enjoying the freedom of its native woods unmolested, and nesting freely wherever the local conditions are favourable. To add to the inducements to stay, I have planted the edges of the native bush with Australian *Acacia*, *Eucalyptus*, and Bottle-brush, the flowers of which trees are a "perpetual joy" to the Tui.

Those who have observed this bird at all closely will be aware that it is in the nesting season—from September to December—that the Tui poses as a songster, and shows off to the greatest perfection. Whilst the hen-bird is sitting the male is accustomed to perch himself on the high limb of a tree not far distant from his mate, using this as a post of outlook; and then, throughout the whole day, he pours out his soul in song. Puffing out his body feathers and gesticulating freely, so as to give greater emphasis to his melody, he produces quite a medley of musical notes, interspersed at intervals with that peculiar cough, and a sound not unlike the breaking of a pane of glass, followed by a series of gentle sobs. Then, quick as thought, he dashes upwards and makes a wide circuit in the air, or silently dives into the bush to exchange courtesies with his mate, snaps at a fly on the way, and then returns to his post of observation and song. After sunset, and as the shadows of evening begin to darken the forest, he alters his tune, and utters a succession of notes like the tolling of a distant bell. Many of the passages in the Tui's ordinary song are of surpassing sweetness, and so rapid is the change from one set of notes to another that the naturalist never tires of listening to the wild melody. Both sexes sing, but in the breeding season the female confines her efforts to a prolonged note like the low chirping of a turkey-hen. As already mentioned, the male has an evening song quite distinct from that of the bright morning. To many ears it has a resemblance to the tolling of a highly pitched silver bell, but to me it is more suggestive of the distant tapping on a metal anvil. Of course, these resemblances are merely fanciful, but the musical cadence of the note is exquisite, as all who are familiar with it will readily admit.*

There can be no doubt that the protection extended to the Tui, some years ago, by a Government proclamation, has had a beneficial effect, for this beautiful and characteristic bird, which was becoming alarmingly scarce in some districts, has perceptibly increased. Although still killed in large numbers by the Maoris in remote districts, where the law is practically inoperative, during certain seasons of the year, it is effectually protected against the senseless killing by larrikins from the towns, and trade collectors, who at one time shot them by hundreds for the sale of the skin to ladies' costumiers in England.

There is this to be said for the Maoris, that they will not allow the Tui to be killed wantonly or when out of condition. Their practice is to send a man out to spear a sample Tui after the berry season has commenced. The bird is then examined, and, if not fat enough, the slaughter of the Tuis is, by common consent, postponed for a time. In purely

* On a quiet summer evening the Tui may sometimes be heard long after dusk. On the wooded shores of the Papaitonga Lake I have heard them tolling up to nine o'clock at night, the notes having a very sweet effect on the water.

native districts this rule is strictly observed, and, as a consequence, when the killing commences the birds are in prime condition, the body being then overlaid with rich yellow fat. By this means all unnecessary waste is avoided.

From Hastings, under the date of January 18th, Captain (now Sir William) Russell sent me the following note: "I have one good large plant of the mountain-flax growing in my garden here. It was planted by myself many years ago. This evening *one* Tui was hopping about it extracting the honey. Almost every season a *pair* of TuIs appear, when the flax-plant is in bloom, remain a day, and then vanish—where? Why do they come? And whence? There is abundance of the swamp-flax not far away, but I have never observed a Tui upon it. There is no native bush, as you know, within miles of Hastings. Possibly you may not think the circumstance strange, and I mention it only because it seems so to me." In reply, I told Captain Russell that the instance he records is by no means uncommon, but that it is quite impossible to account for these vagaries on the part of wild birds. I mentioned to him a very remarkable case within my knowledge of a Wood-Pigeon (*Hemiphaga novæ-zealandiæ*) which, for years past, had at a particular season visited a flowering yellow kowhai in a garden in front of Tinakori Road, in the suburbs of Wellington—miles away from the nearest haunt of the Pigeon—remaining a day and then disappearing. It may, I think, be safely assumed that the same individual bird came back season after season; and, whatever else it may indicate, it seems to furnish good evidence of the existence of memory in birds as a permanent faculty. The same thing has been observed of the common Sea Gull (*Larus dominicanus*). Birds that have been reared by hand in the poultry-yard and have subsequently gone wild will, years after, revisit the scenes of their youth, regale themselves for a day with the fowls, then betake themselves to the sea again.

One of the most remarkable features in the ornithology of New Zealand is the frequency of albinism. In the case of our common Tui (*Prothemadera novæ-zealandiæ*) four examples are mentioned in 'Birds of New Zealand' (vol. i., p. 95). I have now to add several more. A singular specimen was obtained at Table Hill, about twelve miles from Milton, in March, 1887. The general plumage is white with a creamy tinge, the quills and tail-feathers being pure white. The forepart of the head is dull steel-black, which colour fades away into greyish-brown on the neck and upper part of the breast, and then gradually blends with the white. The bill and feet are of the normal colour; but the claws are pale brown.

In a fine example, shot by my son Percy, at Kaikoura, the greater wing-coverts are minutely tipped with white—a very unusual feature. From Stewart Island I have received a beautiful albino. The whole of the plumage is of the purest white, with the exception only of a tinge of cream colour on the shoulders, back, and sides of the body; the bill and feet are also white. This is now in the Tring Museum.

An albino in Mr. Drew's collection has many of the quills in both wings, and the three middle tail-feathers wholly or partially normal; most of the secondaries in one wing partially white; cloudy patches of black on the shoulders and on the abdomen, with a few scattered black feathers on the breast; the rest of the plumage pure white; bill and feet normal.

An albino specimen, lately added to my son's collection, has the head and throat smoky-brown; the whole of the body-plumage white, with a creamy tinge on the shoulders, breast and flanks.

The Tui owes its present very efficient protection in some measure to the occurrence of a beautiful albino in the Taranaki district in the spring of 1902. This bird was shot by a simple country lad who knew nothing about the 'Wild Bird's Protection Act.' So lovely a specimen attracted a good deal of public attention, and the friend to whom the lad gave the bird promptly sent it to the Colonial Museum to be skinned. And now the trouble

commenced! The boy who shot the bird, and who did not really know that it *was* a Tui till he had it in his hand, was prosecuted for a breach of the prohibitory Act, and was fined £3 10s. and costs, and the Tui itself, which was traced to the Museum, was confiscated to the Crown. Questions were asked about it in the Parliament which happened to be in session, the Member for Taranaki, with much vehemence, claimed the bird for the local museum, and the Press of the Colony was full of the incident. In this way the enactment, which hitherto had been little more than a dead letter, became known and was discussed in every settler's home. The snow-white Tui suffered destruction, but its life was not sacrificed in vain; for in the country districts it is now widely known that to shoot a Tui is a violation of the statute law and may be punished by fine or imprisonment. In this instance a fine of seventy shillings upon a country lad, who possessed nothing in the world, was a very exemplary punishment.

My son Percy, who examined this specimen, writes me: "It is a beauty, being pure white except on the crown of the head, which is smoky-brown."

But the most beautiful one I have seen is the "White Tui of Westport," belonging to Mr. Townson, whose collection of native birds has for years past been one of the attractions of that town. On my last visit to Westport, Mr. Townson kindly presented this unique specimen to me, and it is now one of my ornithological treasures. It is a lovely bird, of snowy whiteness, without a single dark feather on any part of its body. It came into his possession alive, and he then noticed that it had *pale blue irides*. The bill and feet are white horn colour.

A remarkable specimen which has been added to my son's collection, has the head and neck all round, the whole of the breast and sides of the body umber-brown, the feathers of the breast having pale shafts; neck-frill very indistinct, being often reduced to mere shaft-lines of white; upper surface of body, wings and tail creamy-white, with a broad alar bar of pure white; thighs, abdomen, and upper and lower tail-coverts pale yellowish-brown; quills and tail-coverts umber-brown on their inner webs; neck-bands pure white; bill and feet horn-coloured.

The Rev. Canon Stack writes: "I want to tell you, before I forget, about a curious acquired habit I have noticed in the imported Starlings. The roof of my house is a favourite breeding-place, and we always have them about us. Close to the house, along a running stream, native flax grows in abundance. While this was in flower I noticed what I thought to be Tuis sucking the honey. The action of the birds on the flax-stalks exactly resembled that of Tuis, but on examining them more closely I discovered that they were Starlings. Have they learnt the habit from seeing the Tuis, which they probably mistook for their own species?"

Mr. W. W. Smith, in a communication to the 'Entomologist,' says: "The Tui or Parson-bird (*Prosthemadera novæ-zealandiæ*) has been detected killing the introduced Humble Bees of Akaroa, on Banks Peninsula. The case is remarkable as illustrating how new habits are acquired, or family habits are destroyed in some species of birds when certain conditions are present. As the Tui is one of the native Honey-suckers, it is possible it also was killing Humble Bees to feed its young (as the introduced Starlings are in the habit of doing) when it discovered the honey-sac of the insects. The Tui, while engaged in killing the Bees, would discover their honey-sac, which would also lead to a continuance of the habit as a ready means of procuring their favourite food."

I have read somewhere that specimens of *Strepera graculina*, in Australia, shot in the neighbourhood of Sydney, sometimes exhibit a violet discolouration in their internal parts, this being occasioned through the birds feeding upon a species of ink-weed. The same thing happens in the case of the Tui, when feeding on the tutu, mahoe, and other highly coloured berries.

As I have already stated (vol. i., p. 9), Maoris are fond of keeping pet Tuis and teaching them to "talk." Many stories are told of the proficiency these birds sometimes attain. Mr. Elsdon Best has furnished the following samples of speeches taught to this bird, with more or less success:—

Uia te manuhiri me ko wai,
 Uia te manuhiri me ko wai.
 Ko Tu koe, ko Rongo koe, ko whakamau tarawa.
 Tahia te wananga-e! ko matiti,
 Ko matiti-kura, ko matiti-aro.
 Ko te wheu, ko te whare, te whare patahi-e
 Huia te rangiora. Erongo ki waho-e.
 Haere mai! Haere mai! E te manuhiri tuarangi.
 Kaore he kai o te kainga. Kai tawhiti te kai.
 Moi moi-e! Haere mai!
 E-he! E-he! Kai tuwha!

The Tui or Koko was tamed by the old-time Maori, and was often taught to talk. Cases are on record where they have been taught to repeat karakia (invocations), and such an accomplished bird was highly prized. Again, they were taught to welcome guests arriving at the village.

The same intelligent writer gives the following account of Maori methods of taking the Tui:—

The Koko or Tui were taken by the pae, spear, tahei (snares), mutu and whakamoe. The mutu (or mutumutu) is like a small mutu-kaka, the perch being about four inches in length. It is fastened to a pole, and manipulated as the 'pewa,' of which more anon. The mutu must not have a new appearance, or the birds will not settle upon it. It is exposed to the weather to give it an old appearance (kia hiwia) and make it resemble a weather-beaten dry branch. The end of the perch and the lashing are concealed by moss, fastened on in a cunning manner by the wily fowler. When the Koko are feeding upon the mako berries they will not respond to the call leaf, and at such a time are speared with the maiere. 'Tahei,' or sets of noose snares, were set on trees and around pools of water, as for the Pigeon.

The 'whakamoe' method of taking the Koko is somewhat curious. It could only be effected on very cold, frosty nights, when the birds become so cold on the perches that they could be taken by hand. The natives state that the birds become quite benumbed, and so much affected by the cold, that they are as it were frozen to the perch. In the evening the perches or resting places of the Koko are located, and the way thereto marked, either by bending down branches or by placing on the ground leaves of the rangiora, with the white side uppermost. This enables the fowlers to return to the resting-places of the birds, at a late hour of the night, when the frost and cold have rendered the Tui powerless to fly. Armed with torches, they return, two men working together. One man remains below, while the other climbs the tree and takes the birds by hand. The birds do not awaken; they are at that season very fat, and are paralysed by the cold (ka tikona e te huka). The man puts the birds into a basket as he takes them. Should a bird fall it cannot fly, but falls to the ground, where fowler No. 2 secures it. It will utter a cry as it falls, but that is of no moment. "He koko whakamoe, ka mate te tangata." This is an old saying for people of a pa found asleep, or with no sentries set, by an attacking force. "The sleepy heads are slain as easy as is the frozen Koko."

The 'pewa' is a device used principally for taking the Tihe and sometimes the Tieke. It is a most ingenious perch, set with a loop snare, and worked as a mutu-kaka, the pole and perch being, however, as one, the lashing carefully covered with moss, and on the outer end of the perch is tied a bunch of berries, such as the kueo, or sometimes flowers, as the kahika (blossom of the rata) or the aka-tawhiwhi. The pewa is used in the winter season.

I have described in the 'Birds of New Zealand' (vol. i., p. 99) the nest of the Tui, always constructed of small twigs and moss intermixed, with a neatly lined cavity

for the eggs. The moss generally used is a soft, light green kind, which is found trailing from the branches of young trees in the forest; the same with which the Maoris invariably disguise their "tuke" or snares. But I have known the Tui in certain localities substitute the greenish-white kohukohu (*Usnea*), which is seen hanging about the branches of the kahikatea and other trees at the edges of swampy ground. When perfectly dry this is very soft and yielding, and no doubt it suits the Tui's purpose as well as the green forest moss. I met with exactly the same epiphytic growth in the Rocky Mountains and in the United States of America. Here it is utilised by a particular species of bird, the Parula Warbler (*Compsothlypis americana*)—a lovely little bird attired in purple and orange and white—which constructs its nest of this lichen, and uses no other material. There are two or three pretty pensive nests of this bird in the Museum of the Academy at Philadelphia. Sir H. H. Johnston reports that in the Uganda forests, in Africa, the trees are sometimes richly draped with the *Usnea* lichen.

A nest of this species (now in the Otago Museum) was found by our 'Sounds excursion party' fixed in the branches of a makomako (*Aristotelia racemosa*), about 12 feet from the ground, at the head of Milford Sound. It is of symmetrical shape, and firmly put together, the outworks consisting of twigs and soft tree-moss, then a layer of fern-hair, and inside of this a lining of white feathers. Curiously enough, these are sea-birds' feathers, the builder of the nest having evidently repaired to the shores of the Sound to collect them.

On examining a series of ten eggs I find that they vary a good deal both as to shape and colouring. For the most part they are of a narrow ovoido-elliptical form, with a very pronounced smaller end, but a few of them are less acuminate, and one is broadly ovoid. A typical one measures 1.25 in. by 0.80 in.; the more rounded one I have mentioned measures 1.125 in. by 0.88 in. This is almost entirely white, with only a few indistinct widely scattered rusty or pale red spots towards the larger end. The most highly coloured example is of a delicate creamy-white or salmon tint, the larger end darker and thickly spotted and dotted with pale brown, these markings forming an indistinct zone. Two other eggs are almost exactly similar to this one, but with a paler ground, and all three are probably from one nest. Another set of three have scattered, somewhat obscure, pale brown markings over the entire surface. The three remaining ones (presumably from one nest) are white, with here and there a speck of pale brown, chiefly at the end.

ORDER PASSERIFORMES.]

[FAMILY MELIPHAGIDÆ.

ACANTHOCHÆRA CARUNCULATA.

(AUSTRALIAN HONEY-EATER.)

***Anthochæra carunculata* (Latham), Buller, Birds of New Zealand, vol. i., p. 106.**

I AM not aware that any more stragglers of this well-known species have been observed in New Zealand since the publication of my work.

ZOSTEROPS CÆRULESCENS.
(SILVER-EYE.)

Zosterops cærulescens (Latham), **Buller, Birds of New Zealand, vol. i., p. 77.**

THE history of the arrival from the South and subsequent stay in the North Island of this little migrant is familiar to all who know anything of our local natural history. Its services to the agriculturist and to the gardener are also pretty generally recognised. But one is always glad to record fresh evidence in favour of any deserving bird—especially, too, when there is a widespread prejudice abroad against little birds in general, and an organised crusade for their destruction. As an instance of this, I may refer to a newspaper paragraph to the effect that during a period of three months the Knapdale Road Board (Otago) purchased the large number of 56,612 birds' eggs, for the purpose of destroying them. I am glad, therefore, to give the following from my excellent local correspondent, Mr. Robert Wilson: "The Blight-bird is undoubtedly on the increase in the Rangitikei district. They seem to have found a winter food in the introduced insects, and may now always be seen flying about the run in flocks. The food they are now chiefly subsisting on is a little caterpillar—a striped-green species—which does great harm to the crops in summer. These are now—September—to be found all over grass-lands—under logs, sticks, &c.—and the Blight-bird pursues them indefatigably. When I am working at a fence they will sometimes be within a couple of yards of me, searching every cranny for insects. They are particularly fond of diving out of sight into a common tussock (*Carex*), the plant which grows so freely on the hills, and they crawl about under any fallen scrub, looking for insects, and keeping up a pleasant cheeping all the time. I have sometimes seen them with a caterpillar nearly as big as themselves battering it against a wire on a fence till it was reduced enough to swallow. They must do immense service to farmers at this time of the year, as one caterpillar now means thousands in summer. As every one knows, it is very fond of the American blight, which is so destructive to the apple-trees. There is an orchard close to a patch of native bush on the farm, and the Blight-birds keep it entirely free from this pest. Though the blight sometimes, in hot weather, makes a start on the trees, in winter these birds always keep it under."

In Fiji I saw small flocks exactly resembling our Blight-bird in their flight and habits, but on shooting one I found that it was quite a distinct species. It has a more conspicuous eye-ring, with a beautiful lemon-yellow throat, and only the slightest indication of brown on the sides of the body.

A charge of feasting on pears having been formulated against the Zosterops, an "Old Colonist" came to the rescue in a letter to the *Canterbury Press*, in which he makes a very good defence: "Under an excellent illustration of Wax-eyes sucking up the juice out of holes made by English birds in the pears, I read 'Blight-birds or Wax-eyes having a feast of pears.' This will mislead a great many people, for there are so many who do not notice that the beaks of all native birds are much too slender to make holes in fruit, and they will think them so very destructive that they will kill all they can. If it had been put that they were having a feast of pear juice everybody would have known they were not destroying the fruit. Afterwards a short note should have been added, saying that English birds had picked the holes. I have lived in New Zealand for forty-seven years, and no fruit was picked till the English birds were brought many years afterwards."

I may mention that in one of the local collections there is an eccentric egg of *Zosterops* more than a third smaller than the ordinary egg and the colour far more intense. It was found associated with an egg of the normal type.

In describing *Zosterops westernensis* in the "Catalogue of Birds in the British Museum," Dr. Sharpe expresses his astonishment that this widely distributed species should have escaped notice; the only mention of it being Mr. Gould's statement that "some specimens of *Z. caerulescens* had the throat waxy yellow." Mr. A. J. North investigated the subject with great care, and made a critical examination of nearly fifty skins, in every stage of plumage, obtained in the neighbourhood of Sydney. The result of his observations is thus summed up by him ('Rec. Aust-Mus.,' vol. ii., p. 99): "*Zosterops westernensis* of Quoy and Gaimard, the type of which was obtained by them at Western Port, Victoria, is only the spring and summer attire of *Z. caerulescens* of Latham. Taking the two extreme phases of winter plumage exhibited in *Z. caerulescens*, it can be easily understood why each phase should be thought to belong to a distinct species; and it is only where one has these birds under daily observation, and obtains specimens during every month of the year, that the intermediate stage, or the gradual transition of one phase of plumage to the other, is observed. . . . Typical examples of Latham's *Z. caerulescens*, with the deep tawny-buff flanks and grey throat, the autumn and winter attire of this species, may be obtained in the neighbourhood of Sydney from the middle of April to the end of August. . . . During August and September, however, the gradual transition from the winter to the spring attire (the *Zosterops westernensis* of Quoy and Gaimard) is slowly taking place, and by the middle of October not a bird is to be seen with the deep tawny-buff flanks and the grey throat. Specimens shot in November had the throats of a brighter olive-yellow than at any other period of the year; the flanks at that time being of a very pale tawny-brown. At mid-summer, when the breeding season with the species is virtually over, the throat is slightly paler than in the spring, and this livery is retained until the beginning of March. The flanks then become darker, increasing in intensity of colour from that time forward; the yellow feathers on the throat also disappearing and passing into grey until the autumn livery is again fully assumed by the end of April. . . . All through the year some specimens are found with the under tail-coverts tinged or washed with yellow."

I have taken the New Zealand bird, for specimens, at all seasons of the year and I have never observed these changes of plumage.

This is Mr. Elsdon Best's account of the taking of this bird as told in his 'Sketches from Tuhoeland':—

The small bird known as Pihipihi is taken in great numbers still for food. Two upright poles about five feet high are stuck in the ground, generally in a clearing near the edge of a forest. Across the top, from pole to pole, is fastened a stick called the 'rongohua,' and underneath that a cord or piece of flax is tied across from pole to pole. This string is the 'tau maimoa,' and to it are tied the first few birds caught, generally by the beak. These birds being alive make great efforts to escape, and thus, in their fluttering, attract other birds. The fowler, rod in hand, is seated beneath a slight shelter of boughs or fern-fronds, and strikes down the birds as they flutter about the 'tau maimoa.' Great numbers of the Pihipihi are here yearly preserved in fat. The birds are so small that the only preparation they undergo is being plucked, head, bones, and inside being eaten. The Porete, or Paroquet, is taken in a similar manner. This is termed a 'tanga kakariki.' Another method of taking the Paroquet is termed the 'koputa.' A rough shed is built near the edge of the bush. Branches are stuck in the ground, the tops being bent over to form the roof, the front of the shed being left open. Inside, and near the back of the shed, small poles are placed horizontally, as perches. These are the 'kurupae.' Near them short sticks (turuturu) are stuck in the ground, and to them are fastened the decoy Paroquets, to attract the birds within the shed. The fowler then procures some fronds of the fern known as paraharaha, which he bunches or arranges in a certain manner, and then ties to the end a long stick. When he sees a flock of Paroquets (pokai porete) he waves this pole to and fro. This attracts the birds, which soon settle on trees near the shed.

The fowler then conceals himself behind the hut. He has lying by his side a number of short sticks, each with a noose (tari or reti) attached to one end. He calls the birds by placing the sides of his hand to his mouth, and imitating the sounds made by the Porete when flitting about. The birds soon commence to enter the hut and settle on the 'kurupae,' where they watch intently the decoy birds fastened to the 'turuturu,' just in front and below the 'kurupae.' When a goodly number of birds have settled on the perches, the fowler takes up a stick and pushes it through the screen. He slips the noose over the head of a bird and thus secures it, and so on until he has used all his snares, when he resets them and makes a fresh start.

The call leaf was used for attracting many of the smaller birds, the leaf of a plant called pepepe being often used, as also various other kinds of leaves. To take the little Momoutu the fowler twirls a leaf rapidly between his fingers, at the same time imitating the cry of the bird. It is said that the bird mistakes the twirling leaf for its young, and will come so close as to be caught by hand. The Momoutu is now extinct in Tuhoealand.

The raurekau, or leaf of the manono (*Coprosma grandifolia*), is used to call the Koko or Tui, as also the Tihe, Rearea, Tieke, Kokako and Tataeto, by the 'pae' method.

Mr. W. W. Smith, writing on September 28th, 1903, says:—

I ought to mention the great rarity of the Silver-eye (*Zosterops cerulescens*) in this district during the last five years. Since the dull, cold winter of 1898 I have seen only two small flocks, of about eight or nine individuals in each, instead of the large flocks numbering occasionally hundreds that visited the settled districts in the open Canterbury Plains in former years. The scarcity of food caused by the two previously cool, wet summers is unquestionably the cause of their non-appearance on the Plains as in former winters. I am informed by residents of Mount Somers that these interesting little birds are now scarce in the bush districts compared to their numbers of five years ago. It is, as you are aware, very difficult to procure accurate information as to their numbers, migratory instincts, and habits in the extensive and recently settled districts in the North Island. I am, nevertheless, of opinion that the species is much affected by the continuously chilly summers and lack of food in the settled districts in the South Island, which has compelled them to migrate to the warm West Coast or to the North Island. Let us hope, however, that the species is not undergoing any decadence from climatological or other effects.

Dr. Forbes records the new fact, that in the Chatham Islands these birds at certain seasons frequent the shores of Hanson's Bay in myriads and feed on the little Sand-hoppers (Crustaceans of the Amphipodous group).

Captain Hutton writes: "We found the White-eye both on the Snares and Auckland Islands, and Filhol has reported its presence on Campbell Island. A nest with three addled eggs was found on the Auckland Islands in the branches of a *Dracophyllum longifolium*."

ORDER PASSERIFORMES.]

[FAMILY MOTACILLIDÆ.]

ANTHUS NOVÆ-ZEALANDIÆ.
(NEW-ZEALAND PIPIT.)

Anthus novæ-zealandiæ (Gmelin), Buller, *Birds of New Zealand*, vol. i., p. 63.

It is very clear that these birds congregate in the autumn. On March 21st, 1882, I found them forming into parties of ten or more in the Taupo-Patea country, where this bird is more plentiful than any other species. At other times they are generally to be seen singly or in pairs. During a ride to and from Owhaoko (April 22nd to 29th) I met with numerous flocks, numbering from twenty to fifty at a time. I hardly saw a single bird detached from the flocks.

I have already noticed the inquisitive disposition of this Pipit, and mentioned the circumstance of a flock keeping pace with a train for some miles. As you ride along the road they keep before you, almost allowing your horse to tread on them, then rising with a shrill "cheep," flying a few yards further, and so on again, till their curiosity is satisfied, when they wheel upwards and fall to the rear.

A partial albino from Canterbury has the upper surface of wings, sides of body and abdomen, scapulars and tail-feathers greyish-white, the rest of the plumage normal. A specimen which I saw in Dunedin in January last had the entire plumage of the body pure white, the head only betraying the natural colours.

A specimen which I purchased from Mr. W. Smyth, of Caversham, has the entire plumage creamy-white, more or less stained on the upper surface, especially on the back, with pale yellowish-brown.

Mr. Langley, of Foxton, forwarded to me for examination the skin of a pure albino of this species, very skilfully prepared by himself. There is also another perfect albino in the Colonial Museum collection, obtained, I believe, in the Hawke's Bay district.

Mr. Robert Mair writes: "On a small island about four and a half miles from the Poor Knights, and about eleven from the shore, the only land-bird I saw was a Pihoihoi (Ground Pipit). Rather a strange place, I thought, for him!"

There is no difference whatever in the plumage of the sexes. Out of a good number I collected on one occasion, a bird I picked out as being a male proved on subsequent dissection to be a female, and *vice versa*.

The nest of this species is composed entirely of fine grass stems, placed loosely together, and is generally accommodated to horses' footprints or other depressions in the ground.

Dr. Otto Finsch who, in 1875, paid a visit to New Zealand and travelled through both islands, published an account of his experiences, in which he stated that by far the commonest bird observed by him was this Pipit, which he met with everywhere. What is the record now? Mr. W. W. Smith, in a letter dated August 15th, 1903, says:—

In crossing the great Ashburton moraine, which is an ideal habitat of the native Pipit (*Anthus novæ-zealandiæ*), we did not see a single specimen of this familiar old-time species. It would now be a rare and pleasant occurrence, when riding across the open country, to observe a single Pipit, running and flying short distances, alternately, along the tussock track, which habit you have so accurately sketched. I painfully regret the disappearance of this denizen of the open tussock country.

There are some ornithologists who would not find any difficulty in distinguishing sub-species, founded on variations, in as common a bird as our House Sparrow. I can hardly regard as more serious the attempt that has been made to differentiate three sub-species of this common Pipit under the distinctive names of the typical *Anthus novæ-zealandiæ novæ-zealandiæ*, *A. novæ-zealandiæ reischeki*, and *A. novæ-zealandiæ chathamensis*, and I have carefully studied the minute descriptions given by Dr. Von Lorenz (in the Annals of the Hofmuseum of Vienna, xvii., 1902), but I can find nothing to justify the proposed separation. These forms are founded on minute variations in the plumage; but, while admitting a certain amount of individual variation, I am quite unable to accept these distinctions as specific.

I notice that Captain Hutton, when exhibiting to the Philosophical Society of Canterbury an albino English Skylark, referred to it as the first example of the kind obtained in New Zealand. This is not exactly the case, however, for in 1886 I received two specimens from Mr. W. W. Smith, of Ashburton. One of these I presented to the British Museum and the other to the Cambridge Museum. The fact is interesting, in itself, as showing the strong tendency to albinism in this country even among introduced birds.

The last letter received from Mr. W. W. Smith, who is visiting every part of New Zealand as a member of the Scenery Preservation Commission (dated Rotorua, November 12th, 1905), contains the following interesting observations on the habits of this species:—

I observed an article lately in a London journal on your work on New Zealand birds which induces me to send you just a few notes.

A week ago we were at the Hot Lakes and Hot Springs, Taupo, for several days. I was very much interested in seeing the Ground Lark (*Anthus novæ-zealandiæ*) walking about in the hot water flowing over the beautiful siliceous terraces and feeding on the numerous diptera and dipterous larvæ living on and in the water. Some mornings there were at least fifteen of these birds wading through the hot, shallow, steaming water flowing over the terraces. Pied Fantails were also numerous, flitting through the steaming air, subsisting on minute flies. They were at times quite invisible in the steam filling the valley on calm days. The Larks were there generally in the early morning; but the Fantails were there all day, excepting when the wind was too strong to permit their tiny prey to be on the wing.

On November 8th we visited Ohaki and Orakei-Korako, on the Waikato. At the former place I observed a pair of Pied Stilts also walking around the edges of the hot pools and fumeroles. Mr. Percy Smith informed me that before the destruction of the magnificent Pink and White Terraces by the Tarawera eruption on June 10th, 1886, he had seen thousands of these birds walking about and feeding on insects inhabiting the hot water flowing over these siliceous masses.

I may also mention that when at Rotokawa, near Taupo, we observed numbers of English Starlings nesting in the holes and crevices formed in the perpendicular sulphur walls surrounding the circular fumeroles and boiling mud-pools. Many of the walls, as you are aware, are of great height. They must, however, be subject to great heat at times, as the steam and sulphurous vapour sweep up their faces. It is interesting as illustrating how the introduced birds adapt themselves to conditions wholly different from those of their former home.

I am pleased to say that the Kiwis, including albinos, are still numerous in the Kaimanawa Ranges. I made numerous enquiries respecting them when at Tokanu. I hope the Natural History Committee of the forthcoming Christchurch Exhibition will make a good display of the Native birds. They are certainly working earnestly at present with a view to doing so.

ORDER PASSERIFORMES.]

[FAMILY MOTACILLIDÆ.

ANTHUS AUCKLANDICUS.

(AUCKLAND-ISLANDS PIPIT.)

Anthus aucklandicus, Gray, Ibis, 1862, p. 254.

ALTHOUGH hitherto rejected by me, I feel constrained at last to admit the Auckland Island Ground Pipit to the rank of a separate species. I have had an opportunity of examining a series of specimens representing the adult male and female and the young. On comparing these birds with specimens of *Anthus novæ-zealandiæ* the difference is at once apparent. In the Auckland Island bird the white superciliary streak is wanting; the feathers of the upper surface are not margined as in *Anthus novæ-zealandiæ*, and the under-parts, instead of being white, are of a fulvous cream-colour, slightly mottled on the sides of the breast with brown.

Vol. ii.—20

Young.—A young bird, just from the nest, has the plumage of the upper surface strongly suffused with fulvous, the quills and their coverts, as well as the tail-feathers, broadly margined with fulvous, and the face, throat and under-parts entirely of that colour. The outer tail-feathers, which are white in the adult, are of a uniform pale fulvous. This colour is brightest on the fore-neck and breast, where the feathers are obscurely centred with brown.

I have received a specimen from Antipodes Island, which does not differ from the Auckland Island bird, except that it is somewhat darker and yellower, being evidently a younger bird.

Specimens have likewise been received from Campbell Island.

Referring to two specimens in my collection purchased from Mr. Henry Travers, that gentleman writes: "I saw this bird myself on Rose Island, one of the Auckland group, and shot it there; so mine is positive evidence as against any theory to the contrary. Mr. Bethune's belief that it does not exist there rests on merely negative evidence of his never having actually seen it."

In the 'Transactions of the N.Z. Institute,' vol. xxi., p. 388, Mr. Reischek, after consultation with Professor Thomas and Mr. Cheeseman, at the Auckland Museum, described a new Ground Lark or Pipit from Antipodes Island, and named it *Anthus steindachneri*, after the Director of the Imperial Museum at Vienna. I have not seen the type, but the description of the bird given by Mr. Reischek indicates no difference between this bird and *Anthus aucklandicus*.

ORDER PASSERIFORMES.]

[FAMILY STURNIDÆ.

HETERALOCHA ACUTIROSTRIS.

(HUIA.)

Heteralocha acutirostris, Gould; **Buller**, *Birds of New Zealand*, vol. i., p. 7.

I do not know of any more picturesque sight in the New Zealand woods—now, alas! the opportunities are becoming few and far between—than that of a small party of these handsome birds, playfully disporting themselves among the branches, in the intervals between their customary feeding times. Take for our purpose a dense piece of native vegetation—jungle I may call it—and furnish it, in imagination, with two pairs of these graceful ebony-coloured Starlings with their prominent orange-yellow wattles. They are hopping actively from branch to branch, and at short intervals balance themselves and spread to their full extent their broad white-tipped tails, as if in sheer delight; then the sexes meet for a moment to caress each other with their beautiful ivory bills, while they utter a low, whimpering love-note; and then, without any warning, as if moved by a sudden inspiration, they bound off in company, flying and leaping in succession, to some favourite feeding-place, far away in the silent depths of the forest.

The beautiful Huia, famous alike in Maori tradition and song, is becoming every year more scarce, notwithstanding its close protection by a statute which, I am glad to say, is very rigidly enforced by the police in the bush districts. Its decrease is, no doubt, owing mainly to the inevitable destruction of its favourite forest haunts in the steady march of European settlement, large areas of bush-land being annually cleared and burnt off in every district. Apart from this, the periodical recurrence of devastating bush-fires, originating nobody knows how, is altering the whole aspect of the country. However much this may be deplored, it is one of the necessary accompaniments of colonisation in a country like New Zealand. Owing to such causes, the range of the Huia, always very limited in extent, is becoming more and more restricted every year, and its ultimate fate is not a matter of mere speculation. I was never more impressed with this than when I made an ascent of the Ruahine Range in July, 1898. A wide spread conflagration had swept through and killed many thousands of acres of virgin forest on the side of the range towards Woodville; but on getting beyond and above this scene of desolation, we found the mountain-side clad with thick vegetation. This consists on the lower ranges of the usual mixture of native trees, but at a higher elevation it changes almost entirely to tawhero, or mountain-cedar, which becomes more and more stunted the further you ascend, till at length it is as gnarled and twisted in its growth as the olives of Gethsemane, to which, indeed (according to Bishop Stuart), the trees in this condition present a remarkable likeness. At an altitude of 1,800 feet the lovely *Todea superba* made its first appearance, but this fern soon became the dominant plant, and we at length found ourselves in patches of it many acres in extent, looking very beautiful in symmetrical fronds of vivid green. We reached the summit of Whariti (3,500 feet) in good time, and then stood on the dividing line between the provincial districts of Wellington and Hawke's Bay. The sky being clear, we had a magnificent panoramic view of the surrounding country, both east and west coasts being visible, and the cone of Mount Egmont in the far north, whilst a distant veil of cloud alone prevented our seeing Ruapehu and the burning mountain. We descended by the same route, crossing several densely wooded spurs, and arriving at the foot of the range before nightfall.

Although the season was favourable, and the weather perfect, there was an almost total absence of bird-life. During the whole excursion we never saw or even heard the note of the Tui; we shot a Kaka, heard a Parakeet, and saw a single Huia (a fine female bird), which, on our near approach, went bounding through the mountain vegetation with the swiftness of a greyhound. Our attention was first attracted to it by the peculiar whimpering note, which I have described elsewhere—very soft and musical. Formerly this was a favourite haunt of this elegant mountain Starling, which could always be attracted by an imitation of its peculiar whistling cry; now it has all but vanished. Seeing that excellent insular preserves have been acquired by the Government, it seems to me a great pity that an effort is not made, before it is too late, to capture a few live Huias and turn them out on the Little Barrier, on Kapiti, and on Resolution Island. Unless this be done, the final extinction of this species can only be a matter of a few years. Its powers of flight are so limited—its progression being generally effected by a bounding movement through the branches—that, once safely introduced, there would be no danger of its quitting its island home for the mainland; and the difference of climate at the three points I have indicated would give the experiment every chance of success. The cost would be very small, as this bird is easily snared; and, if the Government would not defray the trifling expenditure necessary, the task might be properly undertaken by the local Acclimatisation Society. From a zoological point of view, it is even of more importance to preserve the Huia for the student of the future than the little Stitch-Bird, about which so much has of late been said and

written. The Huia is more tameable than perhaps any other New Zealand bird, and will accept suitable food almost immediately after being caught; so there would be no practical difficulty in effecting its transportation to any part of the colony. It should be remembered, also, that this was part of the original scheme proposed by Lord Onslow, whose celebrated memorandum to his Ministers gave the first impulse to this insular-conservation which has so taken hold of the popular fancy.

To show how much scarcer this bird is than it was formerly, I may mention that in 1892, accompanied by Mr. Morgan Carkeek, I made an expedition into the wooded ranges at the back of Waikanae. We crossed the Akatarewa saddle, at an elevation of 1,200 feet into the valley of the Hutt, and made a ten-mile circuit over the wooded ranges, cutting our path with bill-hooks through the virgin forest, rendered almost impervious by a tangle of kiekie and supplejack, and camped several nights in the woods. During the whole expedition we only saw a single Huia—which I shot—a male bird, which visited our camp in the early morning. Mr. Carkeek assures me that when exploring and surveying in these ranges only five or six years before the Huia was comparatively plentiful.

On a more recent occasion, accompanied by a Maori, I visited the portion of the Forty-mile Bush, where, as related in my account of the species (vol. i., 2nd ed., pp. 8-17), I obtained so many specimens in 1883, but the bush has completely disappeared before the advancing wave of European settlement. From Pahiatua we rode for twenty miles through clearings exhibiting nothing but charred stumps, the whole of this country having been at the time of my former visit covered with beautiful forest. From the practical standpoint of material advancement, there is nothing regrettable in this; but the fact remains that the home of the Huia is being swept away, and, although these birds, in greatly diminished numbers, have taken refuge in the wooded mountain ranges, the date of their extinction cannot be very far distant.

In conversation with intelligent men in the survey parties, I obtained some interesting particulars relating to the Huia in its native haunts.

As illustrating its extreme docility, even in a wild state, Petersen, a very observant man in the survey party, who was specially recommended to me by Mr. Climie, the head surveyor, because of his knowledge of the Huia and his habits, related the following incidents: On one occasion, almost immediately after pitching a temporary camp in the ranges, Petersen found that a pair of Huias had a nest in the vicinity—in fact, not more than ten yards from the camp. On an old gnarled rata a branch overhung another part of the tree in such a way as to present a broad covered ledge, and this was the spot the birds had selected for their nest. There were three young ones; this being the only instance, Petersen says, of his finding so many, the usual number being two. The Huias were very tame and fearless, the female bird allowing herself to be handled on the nest. In the evening Petersen took her off, and, placing her on the ground near the camp fire, gave her some food, which was very readily taken. The bird was then replaced on the nest, and manifested no concern at this familiarity. In a few days' time the survey party had to shift camp, and, to their credit, the Huia, with her callow young remained unmolested. On another occasion he found a Huia's nest containing a single nestling; this was low down in a wooded valley near a stream of water, whereas all others seen by him were near the summit of the range. The nest was not in a hollow tree, but in the depression formed at the top of a truncated one, with a mass of overhanging vines and epiphytic growth, affording it complete shelter. He took the nestling and placed it in a cage made of kareao-vine, which was then suspended from the ridge-pole inside the men's tent. The old birds followed him to the camp, and continued to feed their young one, coming into the tent for that purpose, quite regardless of the men's presence. The

nestling got strong and robust, but was so noisy in the early morning that the men complained of its disturbing their rest, so the owner passed it on to a settler in the Makuri valley. He kept it for a considerable time, but one frosty night its cage was left exposed, and in the morning the Huia was dead. Shortly after this, one of the survey hands brought him two Huias taken from one nest. The old birds remained in the vicinity; and after facetiously "making a new species," by snipping off the white tips of the tail-feathers with a pair of scissors, he turned the young birds adrift, whereupon they joined their anxious parents and disappeared in the woods.

The nesting-season of this species must be well over at the end of November, for all the female birds I obtained at that date, although greatly denuded of feathers on their under-parts by their protracted labours in the way of incubation, were recovering their yellow fat in various parts of the body. I think the male bird must assist more or less in the work of incubation, for most of those I killed at that period had the under-parts bare, but to nothing like the extent presented by the other sex. In the stomachs of eight which I opened at this season I found very few insect remains, but abundance of vegetable matter, among which I was able to distinguish a ripe berry of *porokaiwiria* and the pulp of others, with numerous seeds of *tawhero* and *kaikomako*. In the stomach of one I found a spider, and the remains of a small weta or tree-cricket.

I was informed by the late Mr. Drew, of Waganui, that he had a beautiful albino Huia offered to him in the flesh, but unfortunately allowed it to pass him. I afterwards endeavoured to trace this specimen, but without success.

I know it is the fashion to raise a wail over the disappearance of the New Zealand birds, and to invoke the powers in the way of protective measures. But there are certain species which, from the nature of the case, it is impossible to preserve, and it seems to me that the Huia is one of these. The Maoris, with their usual directness, struck the nail on the head when they said to the Government: "You have prohibited the killing of the Huia, under a heavy penalty, and yet you allow the forests, whence it gets its subsistence, to be destroyed! Where is the consistency of that?" This was on the occasion when the Government, out of a very proper feeling, and, in compliance with the Governor's request, issued a proclamation protecting this beautiful bird, whose name Lord Onslow had adopted for his New Zealand-born son. The argument is true enough, and, indeed, unanswerable. From what I have related, it will be seen that, with the progress of settlement the forests where the Huia formerly abounded have almost entirely disappeared. It was hoped that the Huia, on being driven from these domains, would take refuge in the mountains; and to a certain extent they have done so, but the cold of the winter drives them down to the lowlands, and now their forest home no longer exists. From the accounts I have given of my own ascents of the Tararua and Ruahine Mountains, it is clear that, whatever be the cause, they do not survive to any great number in the supposed refuge. For this reason, I think it is to be regretted that more specimens of a bird destined ere long to become extinct do not exist in our local museums. A few years hence it will be impossible to obtain any. Fortunately, long before the introduction of the prohibitory law, I had secured a dozen or more superb specimens for my own collection. Without exception, these were obtained in what was then known as the "Forty-mile Bush," a district now entirely covered with green fields and smiling farms, as I have already stated. One is glad, of course, to see the country thus reclaimed, but it is no less gratifying to reflect upon the fine representative series of these birds obtained, before it was too late, for the student of the future. No one is more in sympathy with protective legislation than myself, that is to say, where it can be applied with any success; but here, as in everything else, we must be rational. Even Professor

Newton, who is known to be a great advocate for protection, says in a recent letter to me: "The New Zealand Act is, I daresay, a very laudable and much wanted measure, but unless it is very unlike everything else of the sort known to me, it will probably defeat its object. The things it is intended to protect become so valuable that it is worth almost everybody's while to evade it. As I pointed out, not long ago, that will, I expect, be the effect of the Sudan regulations for the protection of certain beasts and birds. I shall be glad, however, if in either case my fears prove groundless."

Sir John Lubbock (now Lord Avebury), in his charming volume "The Beauties of Nature," in an account of what he terms the "Hura" (meaning, of course, the Huia), pp. 48, 49, makes two mistakes. In the first place he calls it a Crow, whereas it has been proved to be a Starling; and, in discussing the curious modification of the bill in the two sexes, and its use, he says: "When the cock has dug down to the burrow, the hen inserts her long bill and draws out the grub, *which they then divide between them*"—the italics are mine—"a very pretty illustration of the wife as helpmate to the husband."

Now, I believe I was the first to observe and record the peculiar adaptation of the Huia's bill to its habits of life, in a paper which I read before the Wellington Philosophical Society in 1870, describing the conduct of a pair of live birds then in my possession ('Trans. N.Z. Inst.,' vol. iii., pp. 24-29). But I had previously told Sir George Grey all about it, and he, with his usual felicity of expression, told the story at a meeting of the Zoological Society on his return to England. It seems a pity to destroy the pretty sentiment in the case as put by Sir John Lubbock, but science is inexorable, and the truth must be upheld. What I stated in my record of observations was this: "The very different development of the mandibles in the two sexes enabled them to perform separate offices. The male always attacked the more decayed portions of the wood, chiselling out his prey after the manner of some Woodpeckers, while the female probed with her long pliant bill the other cells, where the hardness of the surrounding parts resisted the chisel of her mate. Sometimes I observed the male remove the decayed portion without being able to reach the grub, when the female would at once come to his aid, and accomplish, with her long slender bill, what he had failed to do. I noticed, however, that the female always appropriated to her own use the morsels thus obtained." I am sorry that the stern truth should detract from the poetry of Lord Avebury's narration.*

* This correction was first made in my 'Illustrations of Darwinism,' and Lord Avebury, to whom I of course sent a copy, wrote to me as follows: "Many thanks for the 'Illustrations,' which I have read with much interest. Huia is, of course, allied to the Crow, and I said Crow rather than Starling, as giving a better idea of the size and colour. I observe you say that the female 'comes to the aid' of the cock, so that my account does not differ so very much from what you say. Probably if the cock has not had enough he would take some."

Mr. Jonathan Hutchinson made a practical application of this incident in his speech at the Festival Dinner of the Medical Graduates' College and Polyclinic, the Right Hon. Arthur Balfour in the chair: "A not inappropriate illustration comes to my mind as to the relationship between the wealthy and the scientific in this great work. There is a species of Woodpecker—I will not give you its exact ornithological name, because I have forgotten it—it is a curious bird, and this bird hunts in couples, male and female. They are differently organised as regards their beaks. The male of this bird has an enormously strong beak, and with it he can drive a great hole deep into the stem of a tree where he thinks the grub is hidden. The female has no beak that will suffice for such work, but she has a long slender one. After the male bird has made the hole he calls to his wife, who is enabled by her long beak to get out the grub. She gives him, I hope, his share. My application of this as regards wealth and science is—wealth can make for us the hole and can do the rough work which is absolutely necessary to precede the application of scientific methods. We of the Polyclinic persuade ourselves that our hearts as well as our heads are engaged in the work which we have in hand. We look forward to greater triumphs in the future in the advancement of medical science than any that the world has yet seen, and we invite those who possess the means to join us in the attempt to achieve them. We ask our wealthy

The moulting of this bird takes place in February; and it would seem that at this season there is a separation of the sexes. In this month I have had as many as four males sent to me, each of them being solitary: whereas at other seasons these birds invariably go in pairs. My friend Waata Tohu, a renowned Huia-hunter, informed me that the best month for taking this bird is November, the tail-feathers at that time being in prime condition. The season, he says, is coincident with the flowering of the hinau.

In July, 1898, I paid a visit to the Whariti range of the Ruahine Mountains, formerly a place noted for the abundance of Huia. But, alas! during a whole day spent in the woods I saw only a single Huia. However, the immediate object of my visit was to obtain specimens of the beautiful *Todea superba* fern, and I did not deprive the mountain of this solitary Starling, although carrying a small gun. I made the ascent of the range in company with the Rev. Mr. Eccles and Herr G. Lindauer, the celebrated Austrian artist. We drove in a buggy from Woodville to the end of the road which ascends the lower wooded spurs and then, leaving the track, we entered the bush and made straight for the summit (3,500 feet). We reached it about 2 p.m., and, after a short rest, commenced the descent, getting out of the forest just as the evening shades were closing in upon us. Then we had a five-mile tramp along a very uneven road, in the dark, before we re-entered the trap that had brought us up. The magnificent view we had from the summit fully rewarded us for the toil of the ascent. The day was fortunately clear and we had a very extensive panoramic view. A large portion of both Wellington and Hawke's Bay districts lay spread out before us. Mount Egmont was only just visible, being partly obscured by clouds. Ruapehu and Tongariro were quite obscured; but we had a fine view of both East and West seas, with all the familiar headlands—Cape Kidnappers and Castle Point on the east, the Island of Kapiti and the Taranaki ranges on the west. The Wellington Heads were also in sight, and we were assured that in very clear weather vessels may be seen passing in and out. Immediately below us lay the Rangitikei and Manawatu districts, spread out like a huge map, the swamps and clumps of bush and townships being distinctly visible. The widespread valley in which the thriving town of Woodville is situated, and which only a few years since was one unbroken stretch of forest, is now a rolling plain, presenting, at long intervals, irregular patches of native bush. This shows how rapid has been the progress of settlement in this part of the country. As I have stated, the special object of my visit to the Ruahine Mountains was to obtain a supply of *Todea superba*. We saw none of these ferns till we had reached an elevation of about 1,800 feet, then they appeared sparingly—one here and another there. But they soon became more plentiful, till at length the entire ground was covered with these exquisitely lovely ferns, and this continued to be the case almost to the summit. Indeed, just below the summit, on the northern side, there is a deep ravine containing a natural spring, and here *Todea superba* (the "Prince of Wales's Feather Fern") is to be seen in its utmost perfection. There are millions of plants, and the general effect is that of an illimitable natural conservatory. The only difficulty was to find plants young enough to bear removal. We were not long, however, in filling two sacks, and these we had to carry down on our backs through the thick vegetation covering the side of the mountain.

The Maoris make a much prized cap or turban of scraped flax, ornamented with Huia

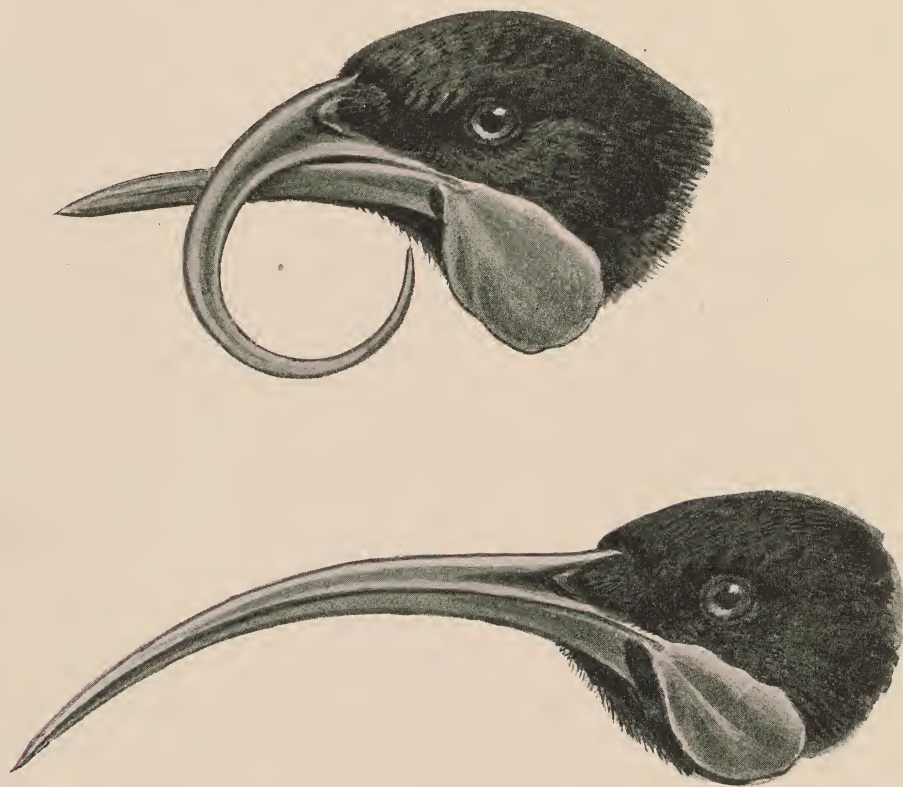
countrymen to make warm their hearts by contemplation of what medical science has done in the past, for the mitigation of human misery, and to come forward in a liberal spirit to help in the work. Our aim is nothing less than as far as may be permitted to realise the poet's vision: "To sweep distemper from the busy day, and make the chalice of the big round year run o'er with gladness."

heads, carefully dried, the beaks of which, hanging down all round and coming into contact make a rattling sound as the wearer moves about. These are called *potae huia*, and no one but a woman of high rank would presume to wear one.

There is a nest of this species from the collection of the late T. H. Potts, in the Canterbury Museum. It is a broad, flat nest, looking more like a Shag's nest than anything else, and is composed of twigs and fern-stalks, pressed closely together. It has a very wide, shallow cavity roughly lined with soft materials, mostly broad grass leaves.

In the 'Birds of New Zealand' (vol. i., p. 17) I have represented in a woodcut a very curious deformity in the bill of a Huia, in which the upper mandible had assumed the form of an erect corkscrew, like the spiral horn of the *Strepsiceros*. This specimen had been obtained in the Forty-mile Bush, and was minutely described afterwards by the Rev. W. Colenso, F.R.S. ('Trans. N.Z. Inst.,' vol. xix., pp. 140-145).

More recently the skin of a Huia, with a curiously contorted bill, was brought to me by a Bombay Indian who had been hawking goods in the Wairarapa. He had a very inflated idea of its value, and asked me a correspondingly high price. I could not come to terms with him, as the object had no intrinsic scientific value, but he left it with me long enough to enable me to take a pencil sketch, which I afterwards published in the 'Transactions of the New Zealand Institute,' and have much pleasure in reproducing here in a more finished form.



MALFORMED AND NORMAL BILL OF HETERALOCHA ACUTIROSTRIS, ♀.

CREADION CARUNCULATUS.

(SADDLE-BACK.)

Creadion carunculatus (Gmelin), Buller, *Birds of New Zealand*, p. 18.

IN some respects this is one of the most distinctive of our native birds. Its woodpecker-like form, its strangely contrasted plumage of brown and black, with yellow wattles, its lively habits, its clarion cry, and its power of subdued song, all tend to make it an attractive object to the student of Nature. I well remember how intensely interested I was on receiving, a little more than fifty years ago, my first two specimens, which had been shot by a Maori in a clump of bush near the head-waters of the Northern Wairoa, a district in which this bird had been rarely ever heard of. I examined my specimens with the closest attention, for the Saddle-back was at that time quite new to me, described them very minutely (the pair representing both sexes), and lavished upon them what taxidermic skill I possessed. The male bird, mounted in a glass case, I presented to the Auckland Museum on the occasion of its first opening, and it remained there for many years. I did not become really familiar with the species till I removed to Wellington in 1855. It was then comparatively common in the low woods which environed what is now the City of Wellington, and in the valley of the Hutt. It was more plentiful than elsewhere in the thick woods of the Makara district, all of which have since disappeared with the spread of agricultural settlement.

I received a fresh specimen from Stephen Island (in Cook Strait) which possesses special interest, not only as proving that the species still exists in this part of the colony, but because it is a very young bird (in the true plumage of *C. carunculatus*), with very small caruncles and a narrow yellow membrane at the angles of the mouth. The only difference in the plumage is that it is duller than in the adult. Such a specimen as this establishes beyond all doubt the validity of *Creadion cinereus* as a distinct species.

Creadion carunculatus is still to be met with on several of the wooded islands in the Hauraki Gulf, but it has entirely disappeared from the mainland. I expected to find it on the Island of Kapiti, but the natives assured me that it had not been seen there for many years.

A nest of the Saddle-back, from Okarita, in the Westland district, is a broad, thick, oval structure, composed of twigs, mosses, and dry grass leaves, the latter predominating. It has a somewhat shallow cavity, lined with similar materials, but of finer quality. Altogether it may be regarded as a loosely constructed nest.

It is indeed singular how this species, so abundant in our woods thirty or forty years ago, has, without any apparent cause, so completely disappeared from the North Island. It still exists, but in sadly diminished numbers, in the South Island; so also does *Creadion cinereus*. During two visits to the West Coast Sounds I was only able to obtain one specimen of each species. I sought in vain for skins at the various dealers' shops I visited. I believe the current price now is a guinea, and in a few years' time it will be impossible to obtain specimens at any price.

Speaking on the subject to old Ihaka, of Ngatiwehiwehi, he said: "Oh, yes; when I was a young man the woods about here [Manakau, Manawatu district,] were swarming with these birds; also with the Kotihe, the Whiowhio, the Pitoitoi, and the Popokatea. Now they are all

gone—as completely as the moa! Soon also will my race vanish from the land, and the white man, with his sheep and his cattle and his birds, will occupy the country!” This was Ihaka’s simple way of formulating the doctrine of the survival of the fittest.

It is curious that although the Native Thrush abounds, neither species of *Creadion* has ever been observed on Stewart Island.

I have mentioned before the habit of this bird to follow, in flocks, the movements of another native species, the Yellow-head. The following account is from the pen of Mr. W. W. Smith, who had an opportunity of minutely observing this habit under very favourable conditions. He writes, in 1888:—*

Probably no scene in bird-life is more attractive or beautiful than to observe a flock of Yellow-heads followed by a flock of Saddle-backs. On June 2nd, 1887, I rambled up Stoney Creek, a small stream which flows into Lake Brunner, a little above the outlet of the Arnold. I had travelled on the banks and bed of the creek about a mile when I turned to the right up a small narrow gully, in search of ferns or other botanical rarities. On reaching nearly the top of the gully, I heard the shrill, ringing notes of a flock of Yellow-heads. As I noticed them crossing the gully some distance above me, I moved on gently until I was under the branches on which the birds were passing over the gully. They numbered about two hundred, and were in rich plumage. They fed eagerly for some minutes among the branches of the trees; then, simultaneously uttering their call, they flew forward some yards and began to feed, until they again sounded the signal to advance, repeating it at short intervals, and passed through the bush in this order. Before the Yellow-heads had quite disappeared I heard the rich flute-notes of a flock of Saddle-backs advancing. I climbed up the side of the gully and stood on the edge. Two males were the first to appear, followed by the remainder of the flock. They advanced in the line of the Yellow-heads; not so high among the branches as the latter, but more among the tree-ferns, while some fed among the ferns and mosses covering the ground. When they noticed me some approached closely, twittering and elevating their tails. They moved about in a sprightly manner on the lower branches, within a few feet of my face, scanning me carefully and wondering, perhaps, at the intruder on their solitary domain. They were exceedingly tame, and moved with great activity, halting at intervals and resting their breasts for a few seconds on the boughs, and again proceeded, searching eagerly for food among the ferns and mosses covering the ground. They were in the perfection of plumage. The saddle-shaped patch of rich brown extending over the back and shoulders, on the lustrous black ground, contrasted with the deep green fronds of the tree-ferns. The sexes were about equal, and the plumage of some paler than others, which were young birds. They remained hopping on the branches and ferns near me for about seven minutes, and disappeared slowly on the track of the Yellow-heads. The purpose served in the Saddle-backs’ economy in following the flocks of Yellow-heads is unquestionably to obtain food. The latter, in moving through the bush, will disturb numerous large insects, which they reject, and which are consumed by the Saddle-backs following them. The rich insect fauna in some parts of the bush in Westland, at certain seasons, will account for the appearance of flocks of the native insectivorous birds in these districts. The flights of Yellow-heads must be entirely regulated by, or restricted to, the supply of food. Where the bush remains in its primæval state they remain numerous; where it is partly cleared or disturbed these species and many others diminish in numbers, and ultimately vanish from the locality. Although the Saddle-backs are not dependent on the flight of Yellow-heads for food, they are able to obtain it by following them and do not always travel in flocks, as they are occasionally seen singly and in pairs, in some of the gullies of the Arnold and around the lakes, but are now very rare, compared to the numbers which inhabited the banks of the Arnold fifteen or twenty years ago. . . . I was attracted early one morning in March towards some old fallen and decayed timber, where I heard some peculiar tapping sounds. On cautiously reaching the place I found a Saddle-back busily digging in the decayed timber for the larvæ of the Huhu-beetle (*Prionoplus reticularis*). The tappings and actions of the bird resembled much those of the Green Woodpecker (*Picus viridis*) of Britain, in its mode of procuring food.

Mr. Handley, in his notes on the ‘Birds of Nelson,’† states that in that province also, where formerly it was very abundant, the Saddle-back is becoming yearly more circumscribed, and it is now practically confined to a few out-of-the-way localities, such as Tophouse, on the road to Nelson, and the Sounds district, where it is rare and widely distributed.

* *Trans. N.Z. Inst.*, vol. xxi., pp. 218-9.

† *Idem*, vol. xxviii., p. 362.

CREADION CINEREUS.

(JACK BIRD.)

Creadion cinereus, Buller, Birds of New Zealand, vol. i., p. 21.

My first acquaintance with this very distinct species was made on Banks Peninsula during my first visit there in 1859. This form was absolutely unknown in the North Island, and I had no hesitation in characterising it as new under the name of *Creadion cinereus*. But it was a long time before ornithologists would believe that it was other than the young of *C. carunculatus*. Dr. Otto Finsch pronounced against the species, and his example was followed by others—all basing their conclusions on the examination of cabinet specimens. This view was strengthened by the exhibition in the Canterbury Museum of some apparent hybrids which seemed to show a transition of plumage. In the end, by the kind aid of the late Mr. A. Reischek, a very active collector, I was able to bring forward irrefragable proof by producing nestling birds of *C. carunculatus* in the same garb as the adults.

There is an exceptionally large example in my collection, received from Mr. J. Brough, who obtained it on Mount Luna, in the Nelson provincial district. In forwarding it he wrote: "During the whole four months I was camped in the woods on the Karamea Saddle I only heard one Saddle-back. I managed to secure it, and may remark that it is the largest-boned bird of the kind I ever shot. The colours are plain, but the bird is in perfect plumage. I cannot say whether it is a male or female, for before I had time to make a dissection, after skinning it, the Wood-hens ran away with the carcase."

This species was formerly very abundant in the South Island, and especially in the woods of the West Coast, but it is now fast disappearing. As I have stated earlier in this work, I made an expedition round the West Coast Sounds, in the summer of 1895-6, with His Excellency the Earl of Ranfurly and his family, in the Government steamboat 'Tutanekai.' Whilst lying at anchor in Milford Sound we frequently visited the shore; and one bright morning, when exploring the beautiful woods around Lake Ada, while I was sauntering along, gun in hand, in company with Lady Constance Knox, the Governor's eldest daughter, one of these birds, with a sharp flute note, appeared suddenly at the roadside, and I immediately shot and secured it; but this was positively the only one we met with during the whole of the expedition.

GLAUCOPIS CINEREA.)

(ORANGE-WATTLED CROW.)

Glaucopis cinerea, Gmelin; Buller, *Birds of New Zealand*, vol. i., p. 5.

THIS is perhaps the most striking instance of the parallelism which produces representative species in the North and South Islands respectively. This aberrant Crow, known as the Kokako, exists on both sides of Cook Strait which divides the two main islands; those at the North have large fleshy wattles at the angles of the mouth, of a brilliant blue colour, while those at the South have similar wattles of a bright orange-yellow, changing to blue at the root. The birds are practically alike in other respects, but represent two entirely distinct species, affording good evidence of the long period of time that marks the physical separation of the Islands. Numerous other instances of this parallel representation are mentioned in the course of my work, the difference in every case being characteristic and constant, clearly the result of selection and gradual development under the operation of well-known natural laws.

Dr. Cahill, of Wellington, kindly presented me with a live bird which he had received from Westport, and I had it in my possession many months. The bird was accustomed to occupy a large wire cage in my library, and was a very lively companion, being perpetually on the move and very musical. Finally it died in a fit, due, I think, to over-feeding without the stimulus of freer exercise. It was an adult male and in perfect plumage, with bright orange wattles, dark blue at the base. Its habitual note, emitted frequently, but chiefly in the early morning and forenoon, was a long, plaintive double-note, pitched in a minor key, very pleasant to hear, but to my mind possessing less richness than the organ-note of the North Island bird (*G. wilsoni*). It was accustomed to use its feet on eating leaves or berries presented to it, just as a Parrot would. On offering this bird a large blue-bottle fly he held it to his perch in the manner described, and deliberately tore off one wing, then the other, tasted its flavour and immediately dropped it. As a rule he would not touch insects, but showed great fondness for succulent leaves of any kind and all sorts of berries, particularly those of *Coprosma lucida*, whether ripe or green. It ate freely of the ripe fruit of the whauhe, but it had a scouring effect, and I had to discontinue the use of this food. It partook readily of cooked potato, boiled rice, and soaked bread; and it was fond of water, drinking freely, but rarely washing itself as other birds do, and yet its plumage was always in clean, silky condition. The wattles were always carried tightly compressed under the chin and meeting at their edges. As I became better acquainted with the bird I found that it possessed several notes besides those described in the recorded history of the species. In the early morning, or before rain, it had a melancholy call like "Kowai-koe?" (Who are you?) in a high key; at other times a mellifluous whistle, and every now and then a liquid note, twice repeated, quite indistinguishable from the evening bell-toll of the Tui. To this is no doubt due the circumstance that this is the Bell-bird of many of the country settlers. Occasionally, but not often, it sounded the rich organ-note—short, but of surpassing sweetness—and at other times a soft note in repetition like the low whimper of the Huia. The mention of yet another note, not unlike a short, hollow cough will prove that this bird was not wanting in vocal accomplishments. Curiously enough, after losing its tail by accident, the Kokako moped and hardly uttered a sound,

as if ashamed of the sorry condition it presented; and as the new tail began to show itself the bird regained its wonted sprightfulness. I know nothing of the history of the bird before it came to me, or whether it was brought up from the nest or not, but I was often inclined to think that, as a caged bird, it had been exercising some natural power of mimicry.

Mr. Brough, in one of his letters, says: "During my last trip into the ranges [Nelson district] we had twenty-six wet days in January, and for the whole time it was mostly wet with no sunshine. I saw a few Orange-wattled Crows and a few Thrushes, and I often heard the note of the Kakapo, but I did not get any."

Mr. Jennings states that this bird is still to be met with in the woods at Catlin's River, in the Otago district, but believes that it will soon disappear altogether.

Mr. Roberts, when surveying in the wooded districts on the West Coast several times met with the nest of this species—always very massive, and placed near the ground.

In the Colonial Museum there is a nest from Freshwater Basin, Milford Sound. It is a fine massive nest, about ten inches long by eight broad; rounded, and bulging at the ends; composed almost entirely of coarse tree-moss and grass, the former preponderating, with a few small twigs intermixed. The cavity is round and shallow, measuring about six inches in diameter, and is completely lined with fine grass bents, carefully arranged in a circular form. Altogether the nest is compactly built, and shows some skill in the construction.

When visiting the West Coast Sounds with Lord Ranfurly,* in the Government steamer 'Tutanekai,' in January, 1896, our party spent a delightful day in the Bush at Milford Sound. On being landed at the mouth of the river, we walked up to Lake Ada, and then took to the boats. His Excellency, with his private secretary and A.D.C., remained on the lake to fish for trout. The Countess of Ranfurly and Miss Hozier had remained on board to sketch the magnificent scenery. I, with the rest of the party, was landed at the far end of the lake, and we worked our way down the margin, through beautiful natural woods, displaying a perfect glory of tree-ferns and carpeted with the lovely *Todea superba*. We shot a good many birds, but nothing of any special value, except that I got a good specimen of *Creádion cinereus*, the only one I saw during the whole of our trip. We several times heard the rich organ-note of the Kokako, but could not locate the bird. The note seems to me feebler than that of the northern species (*Glaucopis wilsoni*), that is to say, not so full and mellow. The common birds were plentiful, and we saw several Tuis chasing each other and indulging in amorous play. Either the breeding season is later here than in the North, where the young have already left the nest, or there are two broods in the season. What strengthens the latter view is the circumstance that one of the Tuis shot (a female) was very bare from incubation, as of recent date.

* Lord Ranfurly was now making his first acquaintance with the birds of New Zealand, of which, at a later date, he made a large and valuable collection for the British Museum, in which he was assisted by Professor Hutton and many other willing New Zealanders. (Cf. Ogilvie Grant, 'Ibis,' 1905, pp. 543-602.) Would that British Colonial Governors in other parts of the world would follow the example, in this respect, of the Earl of Ranfurly and the late Sir George Grey, for the National collection would thus be enriched, to the great benefit of science!

GLAUCOPIS WILSONI.

(BLUE-WATTLED CROW.)

Glaucopis wilsoni, Bonap.; Buller, *Birds of New Zealand*, vol. i., p. 1.

My first knowledge of this bird was derived, some five and fifty years ago, through a young Maori coming into the Mission station, at Tangiteroria, with a bright blue wattle glued upon each of his dusky cheeks. From that moment, of course, I never rested till I had made the acquaintance of the bird which was then, as now, extremely rare in the far north. My first four specimens (two of each sex) came from the Tangihua Mountains, that succession of wooded ranges standing up, blue and distinct, far away to the rear of the Wairoa River. I was at that time a lad of twelve, and had accompanied my brother Martin to a boarding school in Auckland—in those days a somewhat formidable journey by water and by land. A devoted mother who had never skinned a bird before, succeeded, with infinite trouble, in converting the birds into four beautiful cabinet specimens, and they were put aside to gladden the heart of her boy on his return home for the summer vacation, then approaching. I recall this trivial circumstance with deep filial appreciation, because I am convinced that this early influence had a powerful effect in shaping my subsequent life and attaching me to a pursuit which, in the intervals of a very active judicial and professional life, has yielded me unspeakable pleasure.

When, some years later, I moved to the Wellington province, I came into the home of the Kokako, heard with delight its rich organ-note, and obtained as many specimens as I wanted; for in 1854 it was a comparatively common bird in the thick forest surrounding Wellington and filling the valley of the Hutt. From these districts, with the destruction of the native bush, it has long since disappeared; but it may yet be occasionally seen and heard in the wooded Tararua and Rimutaka ranges, especially at the back of the Otaki district.

Owing to these early associations I, not unnaturally, formed a special affection for this beautiful bird. And my interest in the species, as I came to study it, with a maturer knowledge of the subject, increased rather than diminished. It is a matter of keen regret to me, as it must be to every true naturalist, that this is one of the endemic species destined ere long to vanish from the land.

This bird is becoming very rare, however, in localities where formerly it abounded. During an expedition into the Tararua ranges, extending over three days, I met with only one, a fine adult male, which I had no difficulty in shooting, as the bird is not shy. It made a beautiful cabinet specimen, although soon after death the rich mazarine-blue faded out of the wattles, and they became black as the skin dried. My son, Mr. Leo Buller, has the following note in an old diary: "While out pig-hunting on the ranges near Whangarei, on January 15th, I found a Kokako's nest, which contained two young birds. These made their escape from the nest, but the dog caught them, killing one in the operation. I endeavoured to keep the other alive in a cage, but it moped and died."

"Hongē" is the name by which it is known to the Waikato tribes; but it has always been a rare bird in that district.

A perfect albino of this species, obtained in the Wairarapa Valley, has the whole of the plumage pure white, with a tinge of cream colour on the under-parts of the body; bill and feet horn-coloured; wattles flesh colour. Of this bird I have a beautiful portrait from the pencil of Mr. Keulemans.

Mr. T. W. Kirk has recorded several other cases of albinism in this species, more or less complete.

The four specimens dressed, as I have mentioned above, with loving hands, and prepared with so much labour, were, in point of fact, the foundation of a collection which in after years assumed important proportions, and was, on the publication of my first edition, in 1872-3, presented by me to the Colony, when it straightway became the "Type Collection" in the Colonial Museum. This was done in recognition of the generous assistance accorded to me by the Stafford Government in the prosecution of my scientific work.

My second collection was sold by me, on the publication of my second edition, in 1888, to the Hon. Walter Rothschild, for the Tring Museum—on the assessment of Professor Newton, of Cambridge—for £1,000; and my third collection, on the completion of this 'Supplement,' to the Carnegie Museum, Pittsburgh, U.S.A., for a similar sum, the price having been arrived at after a careful valuation by Dr. Bowdler Sharpe, the assistant keeper in charge of the ornithological collections in the British Museum. All three collections will, therefore, be available for the student of the future, when many, if not most, of the species will have passed away for ever. I think these facts are worth recording, seeing that the collections relate to a fauna characterised by Professor Newton as "the comparatively little changed relic and representative of the early fauna of much wider range." In a private letter to myself, this same high authority observes, "the New Zealand avifauna is undoubtedly the most interesting avifauna in the world."

THE END.

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1873

1874

1875

1876

1877

1878

1879

1880

1881

1882

1883

INDEX.

Acanthidositta chloris, ii. 102, 103, 104.
 — *citrina*, ii. 103.
Acanthochæra carunculata, ii. 148.
acuminata, *Heteropygia*, i. 187.
 —, *Tringa*, i. 187.
acutirostris, *Heteralocha*, xxi, xxxi, xxxvii, xxxviii; ii. 154.
 —, —, Malformed and normal bill of, ii. 160.
Adamastor cinereus, i. 106.
Ægialitis ruficapilla, i. 175.
æquinotialis, *Majaqueus*, i. 109.
affinis, *Estrelata*, i. 117.
 —, *Ortygometra*, i. 63.
 —, *Porzana*, i. 63.
alba, *Ardea*, i. 194, 195.
 —, *Gallinula*, i. 73.
 —, *Guara*, xli.
 —, *Gygis*, i. 163.
albaria, *Ninox*, ii. 61.
Albatros, xxiv.
 —, Black-eyebrowed, i. 146.
 —, *Buller's*, i. 149.
 —, Flight of, i. 134, 135.
 —, Grey-headed, i. 154.
 —, *Royal*, i. 138.
 —, —, on her Nest, i. 145.
 —, —, Young of, i. 143.
 —, *Salvin's*, i. 150.
 —, *Shy*, i. 152.
 —, *Sooty*, i. 155.
 —, *Wandering*, i. 128.
 —, *Yellow-nosed*, i. 154.
albicapilla, *Clitonyx*, xviii, xxxiv; ii. 128, 130.
albicillus, *Certhiparus*, ii. 136.
albicollis, *Himantopus*, i. 179.
albifacies, *Athene*, ii. 62.
 —, *Sceloglaux*, xviii; ii. 62, 64, 65, 66, 67, 68.
albifrons, *Miro*, xviii; ii. 100, 120, 123, 124.
 —, *Muscitraea*, xxxix.
 —, *Turdus*, ii. 123.
Albinoes, xxxix.
albistriata, *Sterna*, i. 158, 159.
albofrontata, *Gerygone*, ii. 119.
 —, *Pseudogerygone*, xxiii; ii. 119.
albosignata, *Eudiptula*, i. 96.
Allied Shearwater, i. 100.
Alpine Robin, ii. 123.

alpinus, *Cyanorhamphus*, ii. 89.
 —, *Platycercus*, ii. 89.
altus, *Dinornis*, xvi.
aluco, *Syrnium*, xlii; ii. 66.
americana, *Compsothlypis*, ii. 148.
Anarhynchus frontalis, xxi; i. 177.
Anas castanea, ii. 11.
 — *chlorotis*, ii. 11, 13.
 — *gibberifrons*, ii. 10, 11.
 — *gracilis*, ii. 11.
 — *superciliosa*, ii. 5, 7, 9.
Ancylochilus subarquatus, i. 186, 187.
anglorum, *Puffinus*, i. 105.
Anomalopteryx, xvii; i. 14.
 — *didiformis*, xvii.
Anous cinereus, i. 161.
 — *stolidus*, i. 162; ii. 99.
Antarctic Petrel, i. 108.
antarctica, *Megalestris*, i. 137, 169, 170, 171.
 —, *Sterna*, i. 158.
 —, *Thalassœca*, i. 108, 157.
antarcticus, *Stercorarius*, i. 169.
Antipodes-Island Parrakeet, ii. 81.
antipodum, *Megadyptes*, xxxix.
Anthornis melanocephala, xxiii; ii. 143.
 — *melanura*, xxiii, xxiv, xxxix; ii. 120, 138, 139.
Anthus aucklandicus, xxiii; ii. 153, 154.
 — *novæ-zealandiæ*, xl; ii. 151, 153.
 — — *chathamensis*, ii. 152.
 — — *novæ-zealandiæ*, ii. 152.
 — — *reischekii*, ii. 152.
 — *steindachneri*, ii. 154.
Aphanapteryx, xxiii; i. 44.
Aptenodytes patagonica, xxxix; i. 78, 87; ii. 18.
Apteryx, xvii, xxxi; i. 44.
 — *australis*, xiii, xiv; i. 1, 2, 3, 6, 8, 9, 11, 17, 20, 21, 30.
 — — *australis*, i. 3.
 — — *bulleri*, i. 17.
 — — *mantelli*, i. 3.
 — *bulleri*, xiii, xiv; i. 2, 12, 17, 18.
 — *haasti*, xiii, xiv, xlii; i. 1, 3, 11, 20, 21, 23, 24, 25, 27, 28, 29, 30, 56.
 — *lawryi*, xiii, xiv; i. 1, 2, 3, 6, 7, 8, 10, 11, 14, 17, 19, 20, 23, 25, 26.

Apteryx lawryi, Foot of, i. 9.
 — — Head of, i. 10.
 — *mantelli*, xiv, xliii; i. 2, 3, 8, 11, 12, 17, 21, 26, 30.
 — *maximus*, i. 1, 27.
 — *occidentalis*, xiii, xiv, xviii; i. 6, 17, 21, 23, 24.
 — *oweni*, xiii, xiv, xliii; i. 3, 11, 17, 19, 21, 23, 24, 25, 28, 29, 30.
 — — Feeding, i. 22.
 — — *oweni*, i. 3.
 — — *occidentalis*, i. 3.
Aptornis, i. 44, 58.
aquila, *Fregata*, ii. 50, 52.
 —, *Tachypetes*, ii. 51, 52.
Ardea alba, i. 194, 195.
 — *cinerea*, i. 186, 193.
 — *egretta*, i. 194.
 — *novæ-hollandiæ*, i. 196.
 — *pusilla*, i. 197.
 — *sacra*, i. 198.
 — *syrmatophora*, i. 194.
 — *timoriensis*, i. 194.
Ardetta maculata, i. 197.
 — *pusilla*, i. 197.
Arenaria interpres, i. 171.
ariel, *Fregata*, ii. 52.
 —, *Prion*, i. 124, 126.
assimilis, *Puffinus*, i. 100.
Athene albifacies, ii. 62.
Atlantosaurus, xxvi.
atra, *Fulica*, i. 75.
atratus, *Eudiptes*, xxxix.
atriceps, *Phalacrocorax*, ii. 40.
aucklandica, *Gallinago*, xxv; i. 188, 189, 190; ii. 21.
 —, *Nesonetta*, xxiv; ii. 12, 14, 21.
aucklandicus, *Anthus*, xxiii; ii. 153, 154.
 —, *Cyanorhamphus*, xxiii; ii. 85.
Auckland-Island Duck, ii. 14.
 — *Merganser*, ii. 21.
 — *Parrakeet*, ii. 86.
 — *Pipit*, ii. 153.
 — *Rail*, i. 42.
 — *Shag*, ii. 28.
 — *Shore-Plover*, i. 176.
 — *Snipe*, i. 188.
Auk, Great, xxviii.
auriceps, *Cyanorhamphus*, xl, xli.
 —, *Platycercus*, ii. 88.

- Australian Coot, i. 75.
 — Cuckoo, ii. 102.
 — Curlew, i. 180.
 — Darter, ii. 46.
 — Gannet, ii. 46.
 — Gull, i. 165.
 — Honey-eater, ii. 148.
 — Masked Plover, i. 173.
 — Pelican, ii. 53.
 — Pratincole, i. 192.
 — Quail, i. 35.
 — Roller, ii. 96.
 — Shrike, ii. 128.
 — Snipe, i. 191.
 — Swift, ii. 95.
 — Teal, ii. 10.
 — Tree-Swallow, ii. 113.
 — Whimbrel, i. 181.
australis, Apteryx, xiii, xiv; i. 1, 2, 3, 6, 8, 9, 11, 17, 20, 21, 30.
 — *australis*, Apteryx, i. 3.
 —, Aythya, ii. 16.
 — *bulleri*, Apteryx, i. 17.
 —, Diprotodon, xxvi.
 —, Eurystomus, ii. 96.
 —, Fulica, i. 75.
 —, Gallinago, i. 186, 191.
 — *mantelli*, Apteryx, i. 3.
 —, Merganser, i. 121; ii. 21.
 —, Mergus, xxiv; ii. 22.
 —, Miro, xviii; ii. 122, 123, 124, 129.
 —, Nesierax, ii. 58, 59.
 —, Nyroca, ii. 16.
 —, Ocydromus, xxx; i. 55, 56, 57, 58, 59, 60, 62; ii. 120.
 —, Rallus, i. 61.
 —, Synœcus, i. 35.
 Avocet, Red-necked, xxi; i. 180.
 Aythya *australis*, ii. 16.
axillaris, Estrelata, i. 119, 125.
 Banded Dottrel, i. 175.
 — Rail, xxix; i. 43.
 Banks' Dove Petrel, i. 124.
banksi, Prion, i. 124.
 Bell-bird, xxiii, xxiv, xxxii, xxxvii; ii. 140.
 —, Chatham-Island, ii. 143.
 —, Olive-green, xx.
 —, Yellow, xli.
bellus, Porphyrio, i. 64.
berardi, Pelecanoides, i. 126.
bethunei, Sterna, i. 159.
 Bethune's Tern, i. 159.
bicinctus, Charadrius, i. 175.
 —, Oothodromus, i. 175.
 Bird Life, Vanishing forms of, xxvii.
 Bittern, xliii.
 —, Black-backed, i. 199.
 —, Little, i. 197.
 Black-backed Bittern, i. 199.
 Black-bellied Storm-Petrel, i. 99.
 Black-eyebrowed Albatros, i. 146.
 Black Fantail, xviii; ii. 127.
 Black-fronted Tern, i. 158.
 Black Noddy, i. 163.
 — Oyster-catcher, i. 172.
 — Penguin, xxxix.
 — Petrel, i. 109.
 — Robin, xxiii, xxiv.
 — Shag, ii. 41.
 — Stilt, i. 179.
 — Wood-hen, i. 60.
 Blue Penguin, i. 96.
 — Petrel, i. 122.
 Blue-wattled Crow, xviii, xxxviii; ii. 166.
 Bonaparte's Shearwater, i. 104.
boobook, Ninox, ii. 61, 66.
Botaurus pœciloptilus, i. 199.
Bowdleria caudata, xxiv; ii. 132.
 — *fulva*, ii. 131, 133.
 — *punctata*, xxiv; ii. 131, 132.
 — *rufescens*, xxiii, xxiv; ii. 133.
brachypterus, Ocydromus, i. 57, 60, 61, 62.
brachypus, Rallus, i. 42.
 —, Hypotœnidia, i. 42.
brasiliensis, Mergus, ii. 22.
brevicaudus, Nectris, i. 103.
brevirostris, Phalacrocorax, ii. 39, 41, 42, 43.
 —, Prion, i. 125.
 Broad-billed Dove Petrel, i. 123.
 Bronze Cuckoo, ii. 101.
 Bronze-winged Cuckoo, xx.
 Brown Duck, xlv; ii. 11.
 — Gannet, ii. 50.
 — Wood-hen, i. 52.
 Brownish-black Kiwi, i. 2.
Bruchigavia jamesoni, i. 165.
 Buff Wood-hen, i. 60.
bulleri, Apteryx, xiii, xiv; i. 2, 12, 17, 18.
 —, Diomedea, xxiv; i. 148, 149, 151, 152, 154.
 —, Larus, i. 164.
 —, Miro, ii. 123, 124.
 —, Puffinus, i. 101, 157.
 Buller's Albatros, i. 149.
 — Gull, i. 164.
 — Kiwi, i. 17.
 — Shearwater, i. 101.
 Bush-Hawk, ii. 59.
 Bush-Warbler, xxiii; ii. 119.
 Bush-Wren, xx, xxii; ii. 104.
 Cabalus, xxiii.
 — *dieffenbachii*, i. 44, 45.
 — *modestus*, i. 45.
cærulea, Halobæna, i. 122.
cærulescens, Zosterops, ii. 101, 130, 149.
caledonicus, Nycticorax, i. 197.
 Californian Quail, xxix.
 Campbell-Island Shag, ii. 39.
campbelli, Phalacrocorax, ii. 39, 40.
canutus, Tringa, i. 187.
 Cape Hen, i. 170.
capensis, Daption, i. 121, 122.
 —, Phalacrocorax, ii. 24.
 —, Sula, ii. 48.
carbo, Phalacrocorax, ii. 22.
carneipes, Puffinus, xxv; i. 103, 105.
Carphibis spinicollis, i. 58.
Carpophaga chathamensis, i. 41.
 — *chathamica*, i. 41.
 — *novæ-zealandiæ*, i. 36; ii. 120.
carunculata, Acanthochæra, ii. 148.
 —, Creadion, xviii; ii. 161, 163.
 —, Phalacrocorax, ii. 25, 26, 27, 29, 30, 31, 36, 37, 38.
Casarca rutila, ii. 3.
 — *variegata*, ii. 2.
caspia, Heroprogne, i. 157.
 —, Sterna, i. 157, 159.
 Caspian Tern, i. 157.
castanea, Anas, ii. 11.
castaneum, Nettium, ii. 10, 11.
 Casuarinus, i. 14.
Catarrhactes chrysocome, i. 84, 85, 87, 88.
 — *chrysolophus*, i. 94.
 — *pachyrhynchus*, xxxix; i. 87, 88, 89, 90, 95.
 —, Colony of, i. 87.
 —, Heads of, i. 89.
 — *schlegli*, xxxix; i. 78, 83, 86, 87, 90, 94.
 — *sclateri*, i. 78, 85, 87, 88, 89.
 — *vittatus*, i. 95.
caudacuta, Chætura, ii. 95.
caudata, Bowdleria, xxiv; ii. 132.
cauta, Diomedea, i. 150, 151, 153.
 —, Sphenœacus, ii. 132.
cautus, Thalassogeron, i. 151, 153.
cenchroides, Cerchneis, ii. 60.
Cerchneis cenchroides, ii. 60.
Certhiparus albicollis, ii. 136.
 — *novæ-zealandiæ*, ii. 136.
 — *ochrocephalus*, ii. 136.
cervicalis, Estrelata, i. 114.
Chalcococcyx lucidus, ii. 101.
chalconotus, Phalacrocorax, ii. 22, 30, 32, 33.
Charadrius bicinctus, i. 175.
 — *dominicus*, i. 174.
 — *fulvus*, i. 174.
 — *obscurus*, i. 175.
 — *ruficapillus*, i. 175.
 Chatham-Island Bell-bird, ii. 143.
 — Fern-bird, ii. 133.
 — Parrakeet, ii. 89.
 — Pigeon, i. 41.
 — Robin, ii. 125.
 — Shag, ii. 36.
 — Snipe, i. 188.
 — Warbler, ii. 119.
chathamensis, Hemiphaga, xxiii; i. 41.
 —, Porphyrio, i. 64.
chathamica, Carpophaga, i. 41.
 Chionis, i. 169.

- chionoptera*, Diomedea, i. 151, 152.
chloris, Acanthidositta, ii. 102, 103, 104.
 —, Halcyon, ii. 98.
chloropus, Gallinula, i. 46.
chlororhyncha, Diomedea, i. 154.
 —, Puffinus, i. 103, 104, 105.
 —, Thalassogeron, i. 149, 151, 154.
chlorotis, Anas, ii. 11, 13.
 —, Elasmonetta, xxiv, xlv; ii. 11, 12, 13.
Chætura caudacuta, ii. 95.
Chrysococyx lucidus, ii. 101.
chrysocome, Catarrhactes, i. 84, 85, 87, 88.
cincta, Pogonornis, xxxii; ii. 137.
cinerea, Ardea, i. 186, 193.
 —, Glaucopis, xviii, xxxviii; ii. 164.
 —, Procelsterna, i. 161.
 —, Sterna, i. 161.
cinereus, Adamastor, i. 106.
 —, Anous, i. 161.
 —, Creadion, xviii; ii. 161, 163, 165.
 —, Puffinus, i. 106, 107, 108, 116, 137, 148, 156.
Circus gouldi, ii. 54, 57, 63, 103.
 — *wolfi*, ii. 57.
cirrhatius, Phalacrocorax, ii. 26.
citrina, Acanthidositta, ii. 103.
Clitonyx, ii. 136, 137.
 — *albicapilla*, xviii, xxxiv; ii. 128, 130.
 — *ochrocephala*, xviii; ii. 100, 130.
clypeata, Spatula, ii. 15.
Cnemionis, i. 44.
colensoi, Phalacrocorax, ii. 28, 29, 30, 38, 39, 40.
Colenso's Coot, xxii; i. 75.
Common Heron, i. 193.
 — *Noddy*, i. 162.
Compsothlypis americana, ii. 148.
conspicillatus, Majaqueus, i. 110.
 —, Pelecanus, i. 186; ii. 53.
cooki, Cyanorhamphus, ii. 85.
 —, *Cestrelata*, xl; i. 113, 118, 119.
Cook's Petrel, i. 118.
Coot, Australian, i. 75.
 —, *Colenso's*, xxii; i. 75.
cornicoides, Thalassogeron, i. 151.
Coturnix novæ-zealandiæ, i. 34, 35.
 — *pectoralis*, xxx.
Crake, Swamp, i. 33.
crassirostris, Turnagra, xviii, xxxviii; ii. 134, 135.
crassus, Dinornis, xv; i. 14.
Creadion carunculatus, xviii; ii. 161, 163.
 — *cinereus*, xviii; ii. 161, 163, 165.
Creep, New Zealand, ii. 136.
crepidatus, Stercorarius, i. 171.
Crested Shag, ii. 37.
Crex crex, ii. 134.
cristata, Lophæthya, i. 76.
cristatus, Podiceps, i. 76.
Crow, Blue-wattled, xviii, xxxviii; ii. 166.
 —, Orange-wattled, xxxviii; ii. 164.
 —, Yellow-wattled, xviii.
Crymophilus fulicarius, i. 191.
Cuckoo, Australian, ii. 102.
 —, Bronze, ii. 101.
 —, Bronze-winged, xx.
 —, Long-tailed, xxi; ii. 98.
 —, Shining, ii. 101.
Cuculus intermedius, ii. 102.
 — *saturatus*, ii. 102.
culminata, Diomedea, i. 106, 144, 149, 154.
culminatus, Thalassogeron, i. 149.
Curlew, Australian, i. 180.
 — *Sandpiper*, i. 187.
cyanops, Dysporus, ii. 49.
 —, Sula, ii. 49, 51.
cyanopus, Numenius, i. 180, 186.
Cyanorhamphus alpinus, ii. 89.
 — *aucklandicus*, xxiii; ii. 85.
 — *auriceps*, xl, xli; ii. 88, 89.
 — *cooki*, ii. 85.
 — *cyanurus*, xxiv; ii. 85, 87.
 — *erythrotis*, xxiii, xli; ii. 81, 86, 87.
 — *forbesi*, ii. 86, 89.
 — *hochstetteri*, ii. 86, 87.
 — *intermedius*, ii. 88.
 — *malherbei*, ii. 88, 89.
 — *novæ-zealandiæ*, xxiii, xxiv, xli; ii. 81, 83, 84, 85, 86, 87.
 — *rayneri*, ii. 85.
 — *rowleyi*, ii. 85.
 — *unicolor*, xxiii, xxiv; ii. 81, 82, 83, 86.
Cypselus pacificus, ii. 95.
Dabchick, New Zealand, i. 76.
dannefordi, Miro, ii. 125.
Daption capensis, i. 121, 122.
Darter, Australian, ii. 46.
defilippiana, *Cestrelata*, i. 113.
Demigretta sacra, i. 198.
Dendrocygna eytoni, ii. 1.
desolatus, Prion, i. 99, 107, 119, 123, 124, 125, 126, 131, 144.
Diaphorapteryx hawkinsi, i. 44.
didiformis, Anomalopteryx, xvii.
Didunculus strigirostris, xxxiv.
Didus ineptus, xxxi.
dieffenbachii, Cabalus, i. 44, 45.
 —, Nesolimnas, xxxi; i. 44.
Dieffenbach's Rail, i. 44.
Dinornis, xvi, xxv, xxiii.
 — *altus*, xvi.
Dinornis crassus, xv; i. 14.
 — *elephantopus*, xv; i. 14.
 — *excelsus*, xvi.
 — *giganteus*, xvii; i. 14, 15.
 — *maximus*, xvi, xvii; i. 15.
 — *robustus*, i. 14.
Dinornis validus, xvi.
Diomedea bulleri, xxiv; i. 148, 149, 151, 152, 154.
 — *cauta*, i. 150, 151, 153.
 — *chionoptera*, i. 151, 152.
 — *chlororhyncha*, i. 154.
 — *culminata*, i. 106, 144, 149, 154.
 — *exulans*, xxiv; i. 99, 106, 121, 128, 137, 138, 139, 140, 141, 142, 147, 148, 150, 152, 170.
 — *fuliginosa*, i. 155.
 — var. *cornicoides*, i. 156.
 — *layardi*, i. 149.
 — *melanophrys*, xxiv; i. 107, 142, 146, 147, 148, 152.
 — *nigripes*, i. 133, 146.
 — *regia*, xxiv; i. 99, 131, 137, 138, 139, 140, 141, 142, 143, 148, 150, 152, 170.
 — *salvini*, xxiv; i. 148, 149, 150, 151, 154.
 — Nesting on the Bounty Islands, xxv.
Diprotodon australis, xxvi.
Dodo, xxviii, xxxi.
domesticus, Passer, xxxiii.
dominicanus, Larus, i. 166, 168, 169; ii. 145.
dominicus, Charadrius, i. 174.
Dottrel, xx.
 —, Banded, i. 175.
 —, New Zealand, i. 175.
 —, Red-capped, i. 175.
Doubtful Petrel, i. 112.
Dove Petrel, i. 124.
Duck, Auckland-Island, ii. 14.
 —, Brown, xlv; ii. 11.
 — *Decoys in Pember Bay*, xlv.
 —, Grey, ii. 5.
 —, Mountain, xxii; ii. 17.
 —, —, Head of, ii. 20.
 —, —, Home of the, ii. 18.
 —, Paradise, ii. 2.
 —, Whistling, ii. 1.
 —, White-eyed, ii. 16.
Ducks, Group of Hybrid, ii. 8.
Dusky Robin, ii. 117.
 — *Shearwater*, i. 100.
Dysporus cyanops, ii. 49.
 — *serrator*, ii. 49.
earli, Ocydromus, xix; i. 28, 52, 53, 54, 56, 57, 60.
Eastern Golden-Plover, i. 174.
 — *Great White Heron*, i. 194.
egretta, Ardea, i. 194.
Elasmonetta chlorotis, xxiv, xlv; ii. 11, 12, 13.
elephantopus, Dinornis, xv, i. 14.
Eos, ii. 71.
erythrotis, Cyanorhamphus, xxiii, xli; ii. 81, 86, 87.
 —, *Platycercus*, ii. 86.
esslingi, Nestor, ii. 77, 78, 79.
Eudynamis taitensis, ii. 98.

- Eudypetes antipodum*, i. 94.
 — *atratus*, xxxix.
 — *chrysocome*, i. 84.
 — *chrysolophus*, i. 94.
 — *pachyrhynchus*, i. 85, 86.
 — *schlegeli*, i. 90, 94.
 — *sclateri*, i. 88.
 — *striatus*, i. 86.
 — *vittatus*, i. 95.
Eudypetula albosignata, i. 96.
 — *minor*, i. 96.
 — *undina*, i. 96.
Eurystomus australis, ii. 96.
 — *pacificus*, ii. 96.
excelsus, *Dinornis*, xvi.
exsul, *Pelecanoides*, i. 127.
exulans, *Diomedea*, xxiv; i. 99, 106, 121, 128, 129, 131, 137, 138, 139, 140, 141, 142, 147, 148, 150, 152, 170.
eytoni, *Dendrocygna*, ii. 1.
fairchildi, *Pezoporus*, ii. 81.
falcinellus, *Plegadis*, i. 186, 192.
 —, *Tantalus*, i. 192.
Fantail, Black, xviii; ii. 127.
 —, Pied, xviii; ii. 126.
featherstoni, *Phalacrocorax*, ii. 36.
Fern-bird, xxiii, xxiv; ii. 131.
 —, Chatham-Island, ii. 133.
 —, Fulvous, ii. 131.
 —, Snares, ii. 132.
ferox, *Harpa*, ii. 59.
Fijian Parrot, ii. 83.
finschi, *Hæmatopus*, i. 172.
 —, *Ocydromus*, xix; i. 57, 60, 61, 62.
 —, *Phalacrocorax*, ii. 43.
fisheri, *Œstrelata*, i. 117.
flabellifera, *Rhipidura*, xviii; i. 56; ii. 120, 126, 127.
flaviventris, *Gerygone*, ii. 117, 118.
 —, *Pseudogerygone*, ii. 100, 117, 118, 119.
Flesh-footed Shearwater, i. 103.
forbesi, *Cyanorhamphus*, ii. 86, 89.
Forster's Shearwater, i. 99.
Fregata aquila, ii. 50, 52.
 — *ariel*, ii. 52.
Fregetta melanogaster, i. 99, 156.
Frigate-bird, Great, ii. 50.
 —, Small, ii. 52.
Frisled Shag, ii. 44.
frontalis, *Anarhynchus*, xxi; i. 177.
 —, *Sterna*, i. 158, 159, 160.
Fulica atra, i. 75.
 — *australis*, i. 75.
 — *novæ-zealandiæ*, i. 75.
fulicarius, *Crymophilus*, i. 191.
 — *Phalaropus*, i. 191.
fuliginosa, *Diomedea*, i. 155.
 — var. *cornicoides*, *Diomedea*, i. 156.
 —, *Œstrelata*, i. 118.
 —, *Phœbetria*, i. 99, 137, 151, 152, 155, 170.
fuliginosa, *Rhipidura*, xviii; i. 56; ii. 127.
 —, *Sterna*, i. 159, 160.
Fuligula novæ-zealandiæ, ii. 17, 55.
fulva, *Bowdleria*, ii. 131, 133.
Fulvous Fern-bird, ii. 131.
fulvus, *Charadrius*, i. 174.
 —, *Sphenæacus*, ii. 131, 132.
fusca, *Sula*, ii. 50.
fuscus, *Gallirallus*, i. 61.
 —, *Ocydromus*, i. 60, 61.
Gallinago aucklandica, xxv; i. 188, 189, 190; ii. 21.
 — *australis*, i. 186, 191.
 — *huegeli*, xxv; i. 188, 189, 190.
 — *pusilla*, xxv; i. 188, 189, 190.
 — *tristrami*, xxv; i. 188.
Gallinula alba, i. 73.
 — *chloropus*, i. 46.
 — *nesiotis*, i. 46.
Gallirallus fuscus, i. 61.
Gannet, Australian, ii. 46.
 —, Brown, ii. 50.
 —, Masked, ii. 49.
Gannets on their Nesting-ground, ii. 48.
Gare-fowl, xxviii.
garnoti, *Pelecanoides*, i. 127, 128.
Garrodia nereis, i. 98, 131.
gavia, *Puffinus*, i. 99, 100.
Gerygone albofrontata, ii. 119.
 — *flaviventris*, ii. 117, 118.
 — *igata*, ii. 118.
 — *sylvestris*, ii. 119.
Giant Petrel, i. 120.
gibberifrons, *Anas*, ii. 10, 11.
 —, *Nettion*, ii. 11.
gigantea, *Ossifraga*, xl; i. 106, 107, 120, 121, 144, 148.
giganteus, *Dinornis*, xvii; i. 14, 15.
gilviventris, *Xenicus*, xxii; ii. 108, 110.
glacialoides, *Thalassœca*, i. 108.
Glareola grallaria, i. 192.
Glaucopis cinerea, xviii, xxxviii; ii. 164.
 — *wilsoni*, xviii, xxxviii; ii. 164, 165, 166.
glaucus, *Phalacrocorax*, ii. 33, 34.
Glossy Ibis, i. 192.
Glottis nebularius, i. 186.
Godwit, xx.
 —, Red-breasted, i. 185.
 —, Southern, i. 181.
Golden-Plover, Eastern, i. 174.
Goldfinch, xxxiii.
gouldi, *Circus*, i. 58, 103; ii. 54, 57, 63.
 —, *Majaqueus*, i. 111.
 —, *Œstrelata*, i. 111.
Gould's Dove Petrel, i. 126.
 — *Harrier*, ii. 54.
Graculus stictcephalus, ii. 41.
gracilis, *Anas*, ii. 11.
graculina, *Strepera*, ii. 146.
graculus, *Phalacrocorax*, ii. 34.
grallaria, *Glareola*, i. 192.
Graucalus melanops, ii. 128.
Gray's Shag, ii. 33.
Great Auk, xxviii.
 — *Crested Grebe*, i. 76.
 — *Frigate-bird*, ii. 50.
Grebe, Great Crested, i. 76.
Greenfinch, xxxiii.
Green Parrakeet, xxi, xxiii, xxxiv.
Greenshank, i. 186.
Grey-and-White Ground-Pipit, xx.
Grey-backed Storm-Petrel, i. 98.
Grey Duck, ii. 5.
Grey-faced Petrel, i. 111.
Grey-headed Albatros, i. 154.
Grey Kiwi, xvii, xviii; i. 28, 29.
 — *Petrel*, i. 106.
 — *Phalarope*, i. 191.
 — *Sandpiper*, i. 186.
 — *Warbler*, xxxiii; ii. 117.
greyi, *Ocydromus*, xix, xxix, xxx; i. 47, 55, 56, 57, 60.
 —, *Stringops*, xli; ii. 90.
griseus, *Puffinus*, i. 102, 104, 105, 108, 148.
Ground Owl, xviii.
Ground-Parrot, xix, xxxi.
Ground-Pipit, xxiii, xl.
 —, *Grey-and-White*, xx.
Ground-Wren, xxxiv.
Guara alba, xli.
 — *rubra*, xli.
gularis, *Œstrelata*, i. 101, 117.
 —, *Procellaria*, i. 117, 118.
Gull, Australian, i. 165.
 —, Buller's, i. 164.
 —, Red-billed, i. 166.
 —, Southern Black-backed, i. 168.
Gygis alba, i. 163.
Gymnorhina tibicen, ii. 96.
haasti, *Apteryx*, xiii, xiv, xlii; i. 1, 3, 11, 20, 21, 23, 24, 25, 27, 28, 29, 30, 56.
Haast's Kiwi, i. 25.
habroptilus, *Stringops*, xix; i. 26; ii. 89, 90.
Hæmatopus finschi, i. 172.
 — *longirostris*, i. 172, 173.
 — *unicolor*, i. 6, 172, 179.
Haladroma urinatrix, i. 126, 127.
Halcyon chloris, ii. 98.
 — *julia*, ii. 98.
Halcyon norfolkiensis, ii. 98.
 — *occipitalis*, ii. 98.
 — *sacer*, ii. 97, 98.
 — *sacra*, ii. 98.
 — *sanctus*, ii. 98.
 — *solomonis*, ii. 98.
 — *sordidus*, ii. 98.
 — *tristrami*, ii. 98.
 — *vagans*, ii. 97, 98.
Halobæna cærulea, i. 122.

- Harpa, ii. 58.
 — *ferox*, ii. 59.
 — *novæ-zealandiæ*, ii. 58.
 Harpagornis, ii. 62.
 Harrier, Gould's, ii. 54.
harrisi, Phalacrocorax, ii. 14.
 Hawk, Bush-, ii. 59.
 —, Quail-, ii. 57, 58.
 —, White, ii. 56.
hawkinsi, Diaphorapteryx, i. 44.
hectori, Megalapteryx, xv.
 —, Ocydromus, i. 57, 60, 61.
 —, Turnagra, ii. 134.
Hemiphaga chathamensis, xxiii; i. 41.
 — *novæ-zealandiæ*, i. 36, 41, 179;
 ii. 145.
 — *spadicea*, i. 40.
 Hen, Swamp-, i. 64.
Herodias timoriensis, i. 194.
 Heron, Common, i. 193.
 —, Eastern Great White, i. 194.
 —, Nankeen Night-, i. 197.
 —, Reef, i. 198.
 —, White-fronted, i. 196.
Heroprogne caspia, i. 157.
Heteractitis incanus, i. 186.
Heteralocha acutirostris, xxi, xxxi,
 xxxvii, xxxviii; ii. 154.
 —, Malformed and normal
 bill of, ii. 160.
Heteropygia acuminata, i. 187.
heugeli, Gallinago, i. 188, 189, 190.
Hieracidea, ii. 58.
 Hihi, ii. 137.
Himantopus albigollis, i. 179.
 — *leucocephalus*, i. 177, 178.
 — *melas*, xl; i. 179.
 — *novæ-zealandiæ*, i. 179.
 — *picatus*, i. 177, 178, 179.
Hirundo nigricans, ii. 113.
hochstetteri, Cyanorhamphus, ii. 86,
 87.
 —, Notornis, xxii; i. 66.
 Honey-eater, Australian, ii. 148.
 Honge, ii. 166.
hudsonica, Limosa, i. 185, 186.
huegeli, Gallinago, xxv; i. 188, 189,
 190.
 Huia, xxi, xxxi, xxxii, xxxvii, xxxviii;
 ii. 154.
huttoni, Phalacrocorax, ii. 22, 25, 30,
 38.
 Hutton's Rail, i. 45.
 Hybrid Ducks, Group of, ii. 8.
 Hydrochelidon *leucoptera*, i. 157.
Hymenolæmus malacorhynchus, xxii;
 ii. 9, 17.
Hypotaenidia brachypus, i. 42.
 — *macquariensis*, xxiv.
 — *muelleri*, xxiv; i. 42.
 — *philippensis*, xxiv; i. 43, 44.
Hypotriorchis, ii. 58.
 Ibis, Glossy, i. 192.
 —, Scarlet, xli.
 Ibis, Straw-necked, i. 58.
 —, White, xli.
 Ieroglaux, ii. 62.
igata, Pseudogerygone, ii. 118.
 —, Gerygone, ii. 118.
 Ihi, ii. 137.
imperialis, Phalacrocorax, ii. 29, 37.
incanus, Heteractitis, i. 186.
 —, Totanus, i. 186.
incerta, Cestrelata, i. 112.
ineptus, Didus, xxxi.
insularis, Traversia, ii. 109.
 —, Xenicus, ii. 109, 110, 111.
intermedius, Cuculus, ii. 102.
 —, Cyanorhamphus, ii. 88.
interpres, Arenaria, i. 171.
 —, Strepsilas, i. 171.
isabella, Stiltia, i. 192.
 Jack-bird, ii. 163.
jamesoni, Bruchigavia, i. 165.
julia, Halcyon, ii. 98.
 Kaka Parrot, ii. 69.
 —, Yellow-belted, ii. 77.
 Kakapo, xix, xx, xxxi, xxxviii, xli; ii.
 89-95.
 —, Home of the, ii. 91.
 Kakariki, xxi.
 Kea, xli.
 — Parrot, ii. 75.
 Keas in Camp, ii. 76.
 Kereru, i. 39.
 Kermadec-Islands Parrakeet, ii. 87.
 Kestrel, Nankeen, ii. 60.
 Kikimutu, ii. 102.
 King Penguin, xxxix; i. 78.
 — — Hatching its Egg, i. 81.
 Kingfisher, New Zealand, ii. 97.
 Kiwi, xxxi, xxxviii.
 —, Brownish-black, i. 2.
 —, Buller's, i. 17.
 —, Grey, xvii, xviii; i. 28, 29.
 —, Haast's, i. 25.
 —, Little Grey, xiv.
 —, Mantell's, i. 12.
 —, Owen's, i. 19.
 — Preserve in Papaitonga Lake,
 xlv.
 —, Red, i. 18.
 —, South-Island, i. 11.
 —, Stewart-Island, i. 1, 2.
 —, West-Coast, i. 23.
 Kiwis on their Feeding Ground, i. 5.
 Knot, i. 187.
 Koheperoa, ii. 98.
 Kokakos, ii. 137.
 Koko, ii. 72.
 Komako, ii. 142.
 Korimako, xxiii; ii. 129, 138.
 Kotihe, ii. 137.
 Kotuku, i. 194.
 Kotukutuku, i. 194.
kuhli, Puffinus, i. 105.
lapponica, Limosa, i. 184.
 Larger Diving Petrel, i. 127.
Larus bulleri, i. 164.
 — *dominicanus*, i. 166, 168, 169;
 ii. 145.
 — *marinus*, i. 147.
 — *novæ-hollandiæ*, i. 165.
 — *scopulinus*, i. 164, 165, 166, 167,
 169.
 — — Following Shoal of Kaha-
 wai, i. 167.
 Laughing Owl, ii. 62.
lawryi, Apteryx, xiii, xiv; i. 1, 2, 3,
 6, 7, 8, 10, 11, 14, 17, 19, 20,
 23, 25, 26.
layardi, Diomedea, i. 149.
leadbeateri, Caccatua, i. 129.
lessoni, Cestrelata, i. 111.
leucocapilla, Sterna, i. 163.
leucocapillus, Micranous, i. 162.
leucocephalus, Himantopus, i. 177,
 178.
leucophrys, Cestrelata, i. 115, 116.
leucoptera, Hydrochelidon, i. 157.
 —, Cestrelata, i. 113.
lewini, Rallus, i. 42, 43.
Limonites ruficollis, i. 186.
Limosa hudsonica, i. 185, 186.
 — *lapponica*, i. 184.
 — *novæ-zealandiæ*, i. 181, 184.
 Linnet, xxxiii.
 Little Bittern, i. 197.
 — Blue Penguin, i. 96.
 — Grey Kiwi, xiv.
 — Noddy, i. 161.
 — Whimbrel, i. 181.
 — White Tern, i. 161.
lobatus, Lobivanellus, i. 173.
Lobivanellus lobatus, i. 173.
 — *personatus*, i. 173.
longipes, Miro, ii. 124.
 —, Petroica, ii. 124.
 —, Xenicus, xxii; ii. 103, 106, 107,
 108, 110.
longirostris, Hæmatopus, i. 172, 173.
 —, Numenius, i. 180.
 Long-tailed Cuckoo, ii. 98.
Lophæthya cristata, i. 76.
 Lorius, ii. 71.
lucidus, Chalcococcyx, ii. 101.
 —, Chrysococcyx, ii. 101.
lyalli, Traversia, ii. 110.
 Macaroni Penguin, i. 94.
maccormicki, Megalestris, i. 170.
 Maccormick's Skua, i. 170.
 Macquarie-Island Shag, ii. 40.
macquariensis, Hypotaenidia, xxiv.
 —, Rallus, i. 43.
macrocephala, Myiomoira, ii. 100,
 114, 120.
 —, Muscitraea, xviii.
 —, Petreca, ii. 114.
macroptera, Cestrelata, i. 111.
maculata, Ardetta, i. 197.
 Majaqueus, i. 131.
 — *æquinotialis*, i. 109.

- Majaqueus conspicillatus*, i. 110.
 — *gouldi*, i. 111.
 — *parkinsoni*, i. 28, 29, 106, 109, 137, 148.
malacorhynchus, *Hymenolæmus*, xxii; ii. 9, 17.
malherbei, *Cyanorhamphus*, ii. 88, 89.
mantelli, *Apteryx*, xiv, xliii; i. 2, 3, 8, 11, 12, 17, 21, 26, 30.
 —, *Notornis*, xxii, xxx; i. 66, 68, 69.
 Mantell's Kiwi, i. 12.
 — *Notornis*, i. 66.
marina, *Pelagodroma*, i. 98.
marinus, *Larus*, i. 147.
 Marsh Rail, i. 63.
 — *Sandpiper*, i. 187.
 Masked Gannet, ii. 49.
 Matakirea, ii. 56.
maximus, *Apteryx*, i. 1, 27.
 —, *Dinornis*, xvi, xvii; i. 15.
Megadyptes antipodum, xxxix; i. 86, 87, 88.
Megalapteryx, xvii; i. 14.
 — *hectori*, xv.
Megalestris antarctica, i. 137, 169, 170, 171.
 — *maccormicki*, i. 170.
 Megapode, Southern, i. 31.
Megapodius, sp. i. 31.
 — *pritchardi*, i. 31, 174.
melanocephala, *Anthornis*, xxiii; ii. 143.
melanogaster, *Fregetta*, i. 99, 156.
melanoleucus, *Phalacrocorax*, ii. 43, 44, 45.
 —, —, Head of, ii. 45.
melanonotus, *Porphyrio*, xviii; i. 64, 73; ii. 120.
melanophrys, *Diomedea*, xxiv; i. 107, 142, 146, 147, 148, 152.
melanops, *Graucalus*, ii. 128.
melanorhyncha, *Platalea*, i. 193.
melanura, *Anthornis*, xxiii, xxiv, xxxix; ii. 120, 138, 139.
melas, *Himantopus*, xl; i. 179.
 Merganser, xxiv.
 —, Auckland-Island, ii. 21.
Merganser australis, i. 121; ii. 21.
Mergus australis, xxiv; ii. 22.
 — *brasiliensis*, ii. 22.
meridionalis, *Nestor*, xli; ii. 69, 71, 74, 75, 77, 78, 79, 120.
 — *var. esslingi*, *Nestor*, ii. 77.
Mesopteryx, i. 14.
Mesoscolopax minutus, i. 181, 186.
Micranous leucocapillus, i. 162.
minor, *Eudiptula*, i. 96.
 —, *Tachypetes*, ii. 52.
minutus, *Mesoscolopax*, i. 181, 186.
 —, *Numenius*, i. 181.
Miro albifrons, xviii; ii. 100, 120, 121, 123, 124.
Miro australis, xviii; ii. 122, 123, 124, 129.
 — *bulleri*, ii. 123, 124.
 — *dannefordi*, ii. 125.
 — *longipes*, ii. 124.
 — *ochrotarsus*, ii. 106, 124.
 — *traversi*, xxiii, xxiv; ii. 111, 125, 132.
 Moa, xxii.
modestus, *Cabalus*, i. 45.
 Mohoua, ii. 136.
 Mohua, ii. 136.
mollis, *Cestrelata*, i. 112, 113, 117.
montanus, *Nestor*, ii. 69.
 Morepork, xxix; ii. 61.
 Mottled Petrel, i. 117.
 Mountain Duck, xxii; ii. 17.
 —, —, Head of, ii. 20.
 —, —, Home of the, ii. 18.
 — *Starling*, xxxvii.
 Moutuutu, ii. 102.
muelleri, *Hypotaenidia*, xxiv; i. 42.
 —, *Rallus*, i. 42.
Muscicapa vittata, ii. 117.
Muscitræa albifrons, xxxix.
 — *macrocephala*, xviii.
 — *toitoti*, xviii.
 Mutton-bird, i. 102, 104.
Myiomoira macrocephala, ii. 100, 114, 120.
 — *toitoti*, ii. 114.
 Nankeen Kestrel, ii. 60.
 — *Night-Heron*, i. 197.
nebularius, *Glottis*, i. 186.
 — *Scolopax*, i. 186.
Nectris brevicaudus, i. 103.
neglecta, *Cestrelata*, i. 115, 116, 119, 120.
neris, *Garrodia*, i. 98, 131.
 —, *Sterna*, i. 158, 161.
Nesierax australis, ii. 58, 59.
 — *novæ-zealandiæ*, ii. 58.
nesiotis, *Gallinula*, i. 46.
Nesolimnas, xxiii; i. 45.
 — *dieffenbachi*, xxxi; i. 44.
Nesonetta aucklandica, xxiv; ii. 12, 14, 21.
Nestor esslingi, ii. 77, 78, 79.
 — *meridionalis*, xli; ii. 69, 71, 74, 75, 77, 78, 79, 120.
 — *var. esslingi*, ii. 77.
 — *montanus*, ii. 69.
 — *norfolcensis*, ii. 90.
 — *notabilis*, ii. 75, 77, 79.
 — *occidentalis*, ii. 74.
 — *productus*, ii. 77, 78, 80.
 — *septentrionalis*, ii. 74.
 — *superbus*, ii. 71, 79.
Nettium castaneum, ii. 10, 11.
 — *gibberifrons*, ii. 10.
 New Zealand Creeper, ii. 136.
 — *Dabchick*, i. 76.
 — *Dottrel*, i. 175.
 — *Kingfisher*, ii. 97.
 New Zealand Owl, ii. 61.
 — *Pigeon*, i. 36.
 — *Pipit*, ii. 151.
 — *Quail*, xxx; i. 34.
 — *Scaup*, ii. 17.
 — *Shore-Plover*, i. 176.
 — *Shoveller*, ii. 15.
 Ngiru-ngiru, ii. 115.
 Night-Heron, Nankeen, i. 197.
nigricans, *Hirundo*, ii. 113.
 —, *Ocydromus*, i. 61.
 —, *Petrochelidon*, ii. 113.
nigripennis, *Cestrelata*, i. 113.
nigripes, *Diomedea*, i. 133, 146.
Ninox albaria, ii. 61.
 — *boobook*, ii. 61, 66.
 — *novæ-zealandiæ*, ii. 61.
 Noddy, Black, i. 163.
 — *Common*, i. 162.
 — *Little*, i. 161.
norfolcensis, *Nestor*, ii. 80.
norfolkiensis, *Halcyon*, ii. 98.
 Norfolk-Island Parrakeet, ii. 85.
 North-Island Robin, ii. 122.
 —, —, Last-known Resort of the, ii. 122.
 — *Thrush*, ii. 134.
 — *Tomtit*, ii. 114.
 — *Wood-hen*, i. 47.
notabilis, *Nestor*, ii. 75, 77, 79.
Notophox novæ-hollandiæ, i. 196.
Notornis, xxii, xxxviii.
 — *hochstetteri*, xxii; i. 66.
 — *mantelli*, xxii, xxx; i. 66, 68, 69.
 —, —, Head of, i. 74.
 —, Mantell's, i. 66.
novæ-hollandiæ, *Ardea*, i. 196.
 —, *Larus*, i. 165.
 —, *Notophox*, i. 196.
 —, *Phalacrocorax*, ii. 22, 25.
 —, *Plotus*, ii. 46.
 —, *Recurvirostra*, xxi; i. 180.
novæ-zealandiæ, *Anthus*, xl; ii. 151, 153.
 —, *Carpophaga*, i. 36; ii. 120.
 —, *Certhiparus*, ii. 136.
 — *chathamensis*, *Anthus*, ii. 152.
 —, *Coturnix*, i. 34, 35.
 —, *Cyanorhamphus*, xxiii, xxiv, xli; ii. 81, 83, 84, 85, 86, 87.
 —, *Fulica*, i. 75; ii. 17, 55.
 —, *Harpa*, ii. 58.
 —, *Hemiphaga*, i. 36, 41, 179; ii. 145.
 —, *Limosa*, i. 181, 184.
 —, *Nesierax*, ii. 58.
 —, *Ninox*, ii. 61.
 — *novæ-zealandiæ*, *Anthus*, ii. 152.
 —, *Platycereus*, ii. 83, 86.
 —, *Prothemadara*, ii. 72, 120, 144, 145, 146.
 — *reischeki*, *Anthus*, ii. 152.
 —, *Spiloglaux*, ii. 61, 62, 68.

- novæ-zealandiæ*, Thinornis, xl; i. 176.
Numenius cyanopus, i. 180, 186.
 — *longirostris*, i. 180.
 — *minutus*, i. 181.
 — *uropygialis*, i. 181.
 — *variegatus*, i. 181, 186.
nycthemerus, Phalacrocorax, ii. 39.
Nycticorax caledonicus, i. 197.
 — *nycticorax*, ii. 134.
Nyroca australis, ii. 16.
obscurus, Charadrius, i. 175.
 — *Oethodromus*, i. 175.
 — *Puffinus*, i. 100.
occidentalis, Apteryx, xiii, xiv, xviii;
 i. 6, 17, 21, 23, 24.
 — *Nestor*, ii. 74.
occipitalis, Halcyon, ii. 98.
oceanicus, Oceanites, i. 97, 99.
Oceanites oceanicus, i. 97, 99.
 — *wilsoni*, i. 97.
ochrocephala, Clitonyx, xviii; ii. 100,
 130.
ochrocephalus, Certhiparus, ii. 136.
ochrotarsus, Miro, ii. 106, 124.
 — *Turdus*, ii. 124.
Oethodromus bicinctus, i. 175.
 — *obscurus*, i. 175.
Ocydromus, xix, xxiii; i. 44, 50, 51, 53.
 — *australis*, xxx; i. 55, 56, 57, 58,
 59, 60, 62; ii. 120.
 — *brachypterus*, i. 57, 60, 61, 62.
 — *earli*, xix; i. 28, 52, 53, 54, 56,
 57, 60.
 — *finschi*, xix; i. 57, 60, 61, 62.
 — *fuscus*, i. 60, 61.
 — *greyi*, xix, xxix, xxx; i. 47, 55,
 56, 57, 60.
 — *hectori*, i. 57, 60, 61.
 — *nigricans*, i. 61.
 — *sylvestris*, i. 59, 73.
 — *troglodytes*, i. 60, 61.
Estrelata affinis, i. 117.
 — *axillaris*, i. 119, 125.
 — *cervicalis*, i. 114.
 — *cooki*, xl; i. 113, 118, 119.
 — *defilippiana*, i. 113.
 — *fisheri*, i. 117.
 — *fuliginosa*, i. 118.
 — *gouldi*, i. 111.
 — *gularis*, i. 101, 117.
 — *incerta*, i. 112.
 — *lessoni*, i. 111.
 — *leucophrys*, i. 115, 116.
 — *leucoptera*, i. 113.
 — *macroptera*, i. 111.
 — *mollis*, i. 112, 113, 117.
 — *neglecta*, i. 115, 116, 119, 120.
 — *nigripennis*, i. 113.
 — *phillipi*, i. 116, 119, 120.
Olive-green Bell-bird, xx.
onslowi, Phalacrocorax, ii. 31, 37, 40.
Onslow's Shag, ii. 37.
Orange-fronted Parrakeet, ii. 89.
Orange-wattled Crow, xxxviii; ii. 164.
Ortygometra affinis, i. 63.
 — *tabuensis*, i. 63.
Ossifraga gigantea, xl; i. 106, 107,
 120, 121, 144, 148.
oweni, Apteryx, xiii, xiv, xliii; i. 3,
 11, 17, 19, 21, 23, 24, 25, 28,
 29, 30.
 — *oweni*, Apteryx, i. 3.
Owen's Kiwi, i. 19.
Owl, Ground, xviii.
 — *Laughing*, ii. 62.
 — *New Zealand*, ii. 61.
 — *Parrot*, ii. 89.
 — *Rufous-faced*, xviii; ii. 65.
 — *White-faced*, xviii.
 — *Wood*, xlii.
Oyster-catcher, i. 6.
 — *Black*, i. 172.
 — *Pied*, i. 172.
pachyrhynchus, Catarrhactes, xxxix;
 i. 86, 87, 88, 89, 90, 95.
pacificus, Cypselus, ii. 95.
 — *Eurystomus*, ii. 96.
Palæodyptes antarcticus, i. 95.
Palæornis torquatus, ii. 88.
Palapteryx, xvii, xxiii; i. 14.
Paleospheniscus, i. 95.
Paradise Duck, ii. 2.
Paraptenodytes, i. 95.
parkinsoni, Majaqueus, i. 28, 29, 106,
 109, 137, 148.
Parrakeet, Antipodes-Island, ii. 81.
 — *Auckland-Island*, ii. 86.
 — *Chatham-Islands*, ii. 89.
 — *Green*, xxi, xxiii, xxxiv.
 — *Kermadec-Islands*, ii. 87.
 — *Norfolk-Island*, ii. 85.
 — *Orange-fronted*, ii. 89.
 — *Red-fronted*, ii. 83.
 — *Ring*, ii. 88.
 — *Yellow-fronted*, ii. 83.
Parrot, Fijian, ii. 83.
 — *Ground*, xix., xxxi.
 — *Kaka*, ii. 69.
 — *Kea*, ii. 75.
 — *Owl*, ii. 89.
Parson-bird, ii. 144, 146.
parvissima, Strix, ii. 62.
Passer domesticus, xxxiii.
patagonica, Aptenodytes, xxxix; i.
 78; ii. 18.
pectoralis, Coturnix, xxx.
 — *Rallus*, i. 43.
Pelagodroma marina, i. 98.
Pelican, Australian, ii. 53.
Pelecanoides berardi, i. 126.
 — *exsul*, i. 127.
 — *garnoti*, i. 127, 128.
 — *urinatrix*, i. 122, 126, 127; ii. 82.
Pelecanus conspicillatus, i. 186; ii. 53.
Penguin, Black, xxxix.
 — *King*, xxxix, xli; i. 78.
 — *Macaroni*, i. 94.
 — *Royal*, xxxix.
Penguin, Schlegel's, i. 90.
 — *Sclater's*, i. 88.
 — *Thick-billed*, i. 95.
 — *Tufted*, i. 84.
 — *Victoria*, i. 86.
 — *Yellow-crowned*, i. 94.
personatus, Lobivanellus, i. 173.
Petrel, Antarctic, i. 108.
 — *Banks' Dove*, i. 124.
 — *Black*, i. 109.
 — *Black-bellied Storm-*, i. 99.
 — *Blue*, i. 122.
 — *Broad-billed Dove*, i. 123.
 — *Cook's*, i. 118.
 — *Doubtful*, i. 112.
 — *Dove*, i. 124.
 — *Giant*, i. 120.
 — *Gould's Dove*, i. 126.
 — *Grey*, i. 106.
 — *Grey-backed Storm-*, i. 98.
 — *Grey-faced*, i. 111.
 — *Larger Diving*, i. 127.
 — *Mottled*, i. 117.
 — *Phillip's*, i. 119.
 — *Pintado*, i. 122.
 — *Rothschild's*, i. 113.
 — *Salvin's*, i. 119.
 — *Schlegel's*, i. 115.
 — *Short-billed Dove*, i. 125.
 — *Silvery-grey*, i. 108.
 — *Smaller Diving*, i. 126.
 — *Soft-plumaged*, i. 112.
 — *Sooty*, i. 118.
 — *Stink-pot*, i. 109.
 — *Sunday-Island*, i. 114.
 — *White-faced Storm-*, i. 98.
 — *White-headed*, i. 111.
 — *Wilson's Storm-*, i. 97.
Petrochelidon nigricans, ii. 113.
Petroeca macrocephala, ii. 114.
 — *toitoti*, ii. 114.
 — *vittata*, ii. 117.
Petroica longipes, ii. 124.
Pezoporus fairchildi, ii. 81.
Phaethon rubricauda, ii. 53.
Phalacrocorax atriceps, ii. 40.
 — *brevirostris*, ii. 39, 41, 42, 43.
 — *campbelli*, ii. 39, 40.
 — *capensis*, ii. 24.
 — *carbo*, ii. 22.
 — *carunculatus*, ii. 25, 26, 27, 29,
 30, 31, 36, 37, 38.
 — *chalconotus*, ii. 22, 30, 32, 33.
 — *cirrhatous*, ii. 26.
 — *colensoi*, ii. 28, 29, 30, 38, 39, 40.
 — *featherstoni*, ii. 36.
 — *finschi*, ii. 43.
 — *glaucus*, ii. 33, 34.
 — *graculus*, ii. 34.
 — *harrisi*, ii. 14.
 — *huttoni*, ii. 22, 25, 30, 38.
 — *imperialis*, ii. 29, 37.
 — *melanoleucus*, ii. 43, 44, 45.
 — *Head of*, ii. 45.

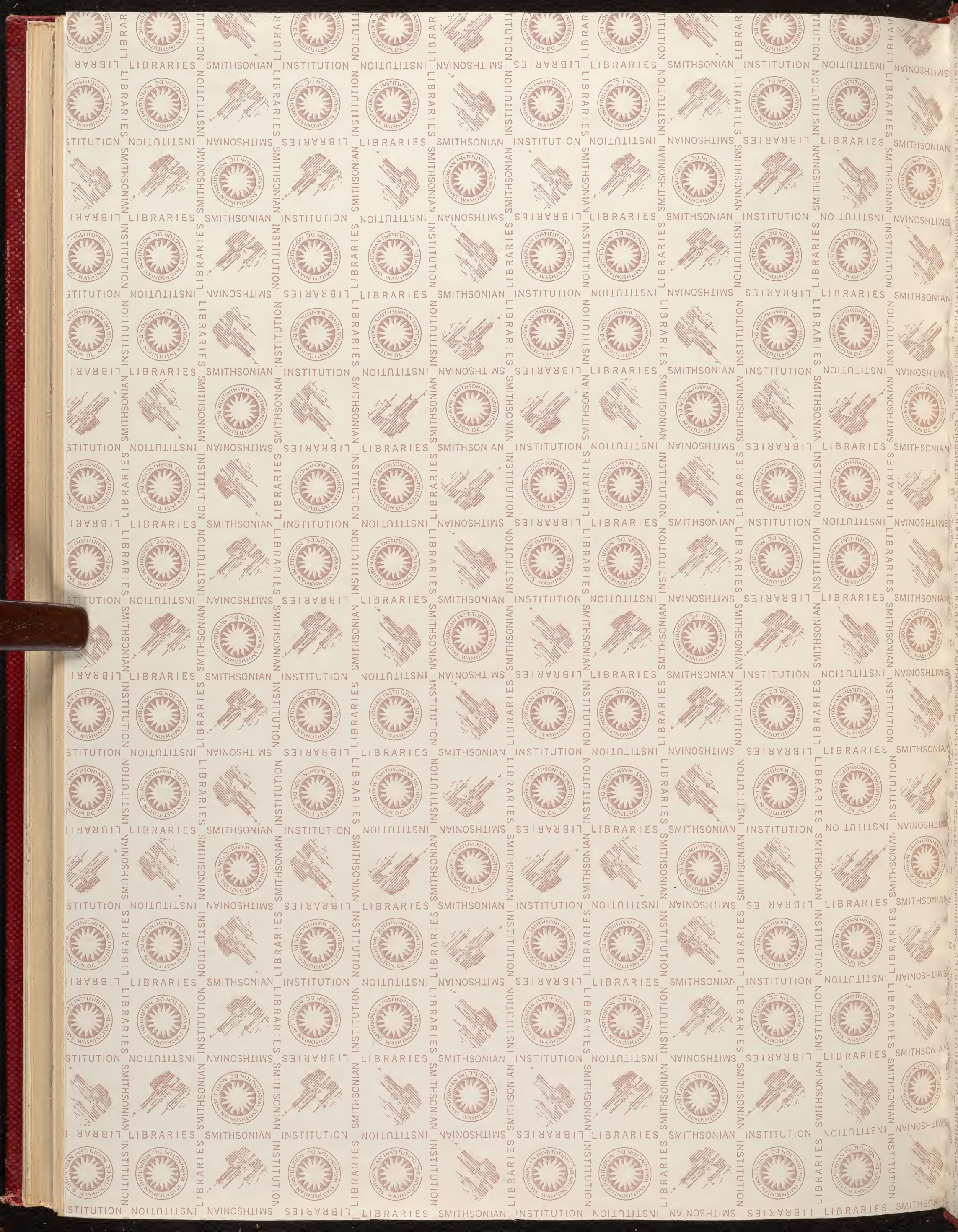
- Phalacrocorax novæ-hollandiæ*, ii. 22, 55.
 — *nycthemerus*, ii. 39.
 — *onslowi*, ii. 31, 37, 40.
 — *punctatus*, ii. 35.
 — *ranfurlyi*, i. 121; ii. 30, 40.
 — *rothschildi*, ii. 28, 38.
 — *stewarti*, ii. 25, 30, 31, 41.
 — *sulcirostris*, ii. 41.
 — *traversi*, ii. 30, 40.
 — *varius*, ii. 24, 25, 31, 44.
 — *verrucosus*, ii. 27, 40.
Phalarope, Grey, i. 191.
Phalaropus fulicarius, i. 191.
philippensis, *Hypotaenidia*, xxiv.; i. 43, 44.
 —, *Rallus*, i. 43.
phillipi, *Cestrelata*, i. 116, 119, 120.
 Phillip's Petrel, i. 119.
Phœbetria fuliginosa, i. 99, 137, 151, 152, 155, 170.
picatus, *Himantopus*, i. 177, 178, 179.
 Pied Fantail, xviii.; ii. 126.
 — Oyster-catcher, i. 172.
 — Shag, ii. 24.
Pigeon, Chatham-Island, i. 41.
 —, New Zealand, i. 36.
 —, Tooth-billed, xxxiv.
 —, White, i. 38.
 —, Wood, xxiii.; i. 36, 38.
 Pintado Petrel, i. 122.
 Piopio, ii. 134, 137.
 Pipit, Auckland-Islands, ii. 153.
 —, Ground-, xxiii, xl.
 —, New Zealand, ii. 151.
Platalea melanorhyncha, i. 193.
 — *regia*, i. 193.
Platycercus alpinus, ii. 89.
 — *auriceps*, ii. 88.
 — *erythrotis*, ii. 86.
 — *novæ-zealandiæ*, ii. 83, 86.
 — *rowleyi*, ii. 83.
 — *unicolor*, ii. 81.
Plegadis falcinellus, i. 186, 192.
Plotus novæ-hollandiæ, ii. 46.
 Plover, Auckland-Island Shore-, i. 176.
 —, Australian Masked, i. 173.
 —, Eastern Golden, i. 174.
 —, New Zealand Shore-, i. 176.
 —, Wry-billed, xx, xxi; i. 177.
plumbea, *Porzana*, i. 33, 63.
Podiceps cristatus, i. 76.
 — *rufipectus*, i. 76.
pœciloptilus, *Botaurus*, i. 199.
Pogonornis cincta, xxxii.; ii. 137.
 Popokatea, ii. 129, 130.
Porphyrio bellus, i. 64.
 — *chathamensis*, i. 64.
 — *melanonotus*, xviii.; i. 64, 73; ii. 120.
 — *samoensis*, i. 65.
 — *smaragdinus*, i. 65.
 — *stanleyi*, i. 73.
Porzana affinis, i. 63.
 — *plumbea*, i. 33, 63.
Pratincole, Australian, i. 192.
Priofinus cinereus, i. 106, 107, 108, 116, 137, 148, 156.
Prion ariel, i. 124, 126.
 — *banksi*, i. 124.
 — *brevirostris*, i. 125.
 — *desolatus*, i. 99, 107, 119, 123, 124, 125, 126, 131, 144.
 — *vittatus*, i. 123, 124.
pritchardi, *Megapodius*, i. 31, 174.
Procellaria gularis, i. 117, 118.
Procelsterna cinerea, i. 161.
productus, *Nestor*, ii. 77, 78, 80.
Prothemadera novæ-zealandiæ, ii. 72, 120, 144, 145, 146.
Pseudogerygone, ii. 136.
 — *albofrontata*, xxiii.; ii. 119.
 — *flaviventris*, ii. 100, 117, 118, 119.
 — *igata*, ii. 118.
 — *sylvestris*, ii. 118, 119.
Ptilotis, xxxii.
Puffinus anglorum, i. 105.
 — *assimilis*, i. 100.
 — *bulleri*, i. 101, 157.
 — *carneipes*, xxv.; i. 103, 105.
 — *chlororhynchus*, i. 103, 104, 105.
 — *gavia*, i. 99, 100.
 — *griseus*, i. 102, 104, 105, 108, 148.
 — *kuhli*, i. 105.
 — *obscurus*, i. 100.
 — *sphenurus*, i. 105.
 — *tenuirostris*, i. 104.
 — *zealandicus*, i. 101, 157.
 Pukeko, xviii.
 Pukunui, xxii.
punctata, *Bowdleria*, xxiv.; ii. 131, 132.
punctatum, *Sphenodon*, xx; i. 118.
punctatus, *Phalacrocorax*, ii. 35.
 — *Sphenæacus*, ii. 120, 131, 132.
pusilla, *Ardea*, i. 197.
 —, *Ardetta*, i. 197.
 —, *Gallinago*, xxv.; i. 188, 189, 190.
Pygoscelis papua, i. 86, 87.
Pyrrhulopsis tabuensis, ii. 82, 83.
 — *tabuensis* var. *atrigularis*, ii. 82.
 Quail, Australian, i. 35.
 —, Californian, xxix.
 —, New Zealand, xxx; i. 34.
 Quail-Hawk, ii. 57, 58.
 —, Head of, ii. 57.
 Rail, xxii, xxiii, xxiv, xxx, xxxi.
 —, Auckland-Island, i. 42.
 —, Banded, xxix; i. 43.
 —, Dieffenbach's, i. 44.
 —, Hutton's, i. 45.
 —, Marsh, i. 63.
 —, Swamp, i. 63.
 Rallus, xxiii.
 — *australis*, i. 61.
Rallus brachypus, i. 42.
 — *lewini*, i. 42, 43.
 — *macquariensis*, i. 43.
 — *muelleri*, i. 42.
 — *pectoralis*, i. 43.
 — *philippensis*, i. 43.
 — *trogodytes*, i. 61.
ranfurlyi, *Phalacrocorax*, i. 121; ii. 30, 40.
 Ranfurly's Shag, ii. 40.
rayneri, *Cyanorhamphus*, ii. 85.
Recurvirostra novæ-hollandiæ, xxi; i. 180.
 Red-breasted Godwit, i. 185.
 Red-capped Dottrel, i. 175.
 Red-fronted Parrakeet, ii. 83.
 Red Kiwi, i. 18.
 Red-necked Avocet, xxi; i. 180.
 Red-necked Sandpiper, i. 186.
 Red-tailed Tropic Bird, ii. 53.
 Reef Heron, i. 198.
regia, *Diomedea*, xxiv.; i. 99, 131, 137, 138, 139, 140, 141, 142, 143, 148, 150, 152, 170.
 —, *Platalea*, i. 193.
Rhipidura flabellifera, xviii.; i. 56; ii. 120, 126, 127.
 — *fuliginosa*, xviii.; i. 56; ii. 127.
Rhynchaspis variegata, ii. 15.
rhynchotis, *Spatula*, ii. 16.
Rhyncocephala, i. 118.
 Richardson's Skua, i. 171.
 Rifleman, xx; ii. 102.
 —, Alpine, ii. 103.
 —, Snow, ii. 103.
 Ring Parrakeet, ii. 88.
 Roa, i. 29.
 Robin, xxxii.
 —, Alpine, ii. 123.
 —, Black, xxiii, xxiv.
 —, Chatham-Island, ii. 125.
 —, Dusky, ii. 117.
 —, North-Island, ii. 122.
 —, —, Last-known Resort of the, ii. 122.
 —, Snares-Island, ii. 125.
 —, South-Island, ii. 120.
 —, Wood-, xviii.
robustus, *Dinornis*, i. 14.
 Rock-hopper, i. 84, 86.
 Rock Wren, xxii; ii. 108.
 Roller, Australian, ii. 96.
rossi, *Thinornis*, i. 176.
rothschildi, *Phalacrocorax*, ii. 28, 38.
 Rothschild's Petrel, i. 113.
 Rough-faced Shag, ii. 25.
rowleyi, *Cyanorhamphus*, ii. 85.
 —, *Platycercus*, ii. 83.
 Royal Albatros, i. 138.
 —, Young of, i. 143.
 — on her Nest, i. 145.
 — Penguin, xxxix.
 — Spoonbill, i. 193.
rubra, *Guara*, xli.

- rubricauda*, Phaethon, ii. 53.
rufescens, Bowdleria, xxiii, xxiv; ii. 133.
 —, Sphenæacus, ii. 133.
ruficapilla, Ægialitis, i. 175.
ruficapillus, Charadrius, i. 175.
ruficollis, Limonites, i. 186.
 —, Trynga, i. 186.
rufifacies Scelogaux, xviii; ii. 65, 66, 68.
rufipectus, Podiceps, i. 76.
 Rufous-faced Owl, xviii; ii. 65.
rutula, Casarca, ii. 3.
sacer, Halcyon, ii. 97, 98.
sacra, Ardea, i. 198.
 —, Demiegretta, i. 198.
 —, Halcyon, ii. 98.
 Saddle-back, xviii; ii. 162.
salvini, Diomedea, xxiv; i. 148, 149, 150, 151, 154.
 —, —, Nesting on the Bounty Islands, xxv.
 —, Thalassogeron, i. 89, 151, 152, 153.
 Salvin's Albatros, i. 150.
 — Petrel, i. 119.
samoensis, Porphyrio, i. 65.
sanctus, Halcyon, ii. 98.
 Sandpiper, Curlew, i. 187.
 —, Grey, i. 186.
 —, Red-necked, i. 186.
 —, Marsh, i. 187.
saturatus, Cuculus, ii. 102.
 Scarlet Ibis, xli.
 Scaup, New Zealand, ii. 17.
Scelogaux albifacies, xxviii; ii. 62, 64, 65, 66, 67, 68.
 — *rufifacies*, xviii; ii. 65, 66, 68.
schlegeli, Catarrhactes, xxxix; i. 78, 83, 86, 87, 90, 94.
 Schlegel's Penguin, i. 90.
 — Petrel, i. 115.
sclateri, Catarrhactes, i. 78, 85, 87, 88, 89.
 Sclater's Penguin, i. 88.
 — *nebularius*, i. 186.
Scolopax subarquatus, i. 187.
scopulinus, Larus, i. 164, 165, 166, 167, 169.
 —, —, Following Shoal of Kaha-wai, i. 167.
 Sea Shag, ii. 22.
septentrionalis, Nestor, ii. 74.
serrator, Dysporus, ii. 49.
 —, Sula, ii. 46.
 Shag, Auckland-Island, ii. 28.
 —, Black, ii. 41.
 —, Campbell-Island, ii. 39.
 —, Chatham-Island, ii. 36.
 —, Crested, ii. 37.
 —, Frilled, ii. 44.
 —, Gray's, ii. 33.
 —, Macquarie Island, ii. 40.
 —, Onslow's, ii. 37.
 Shag, Pied, ii. 24.
 —, Ranfurly's, ii. 40.
 —, Rough-faced, ii. 25.
 —, Sea, ii. 22.
 —, Spotted, ii. 35.
 —, Stewart-Island, ii. 30.
 —, White-throated, ii. 42.
 Shearwater, Allied, i. 100.
 —, Bonaparte's, i. 104.
 —, Buller's, i. 101.
 —, Dusky, i. 100.
 —, Flesh-footed, i. 103.
 —, Forster's, i. 99.
 —, Wedge-tailed, i. 105.
 Shining Cuckoo, ii. 101.
 Shore-Plover, Auckland-Island, i. 176.
 —, New Zealand, i. 176.
 Short-billed Dove Petrel, i. 125.
 Shoveller, New Zealand, ii. 15.
 Shrike, Australian, ii. 128.
 Shy Albatros, i. 152.
 Silver-Eye, ii. 149.
 Silver-Grey Petrel, i. 108.
 Skua, Maccormick's, i. 170.
 —, Richardson's, i. 171.
 —, Southern, i. 169.
 Small Frigate-bird, ii. 52.
 Smaller Diving Petrel, i. 126.
smaragdinus, Porphyrio, i. 65.
 Snares Fern-bird, ii. 132.
 Snares-Island Robin, ii. 125.
 Snares Snipe, i. 189.
 Snipe, Auckland-Island, i. 188.
 —, Australian, i. 191.
 —, Chatham-Island, i. 188.
 —, Snares, i. 189.
 Snow Rifleman, ii. 103.
 Soft-plumaged Petrel, i. 112.
solomonis, Halcyon, ii. 98.
 Sooty Albatros, i. 155.
 — Petrel, i. 118.
 — Tern, i. 159.
sordidus, Halcyon, ii. 98.
 Southern Black-backed Gull, i. 163.
 — Godwit, i. 181.
 — Megapode, i. 31.
 — Skua, i. 169.
 South-Island Kiwi, i. 11.
 — Robin, ii. 120.
 — Thrush, ii. 135.
 — Tomtit, ii. 114.
 — Wood-hen, i. 58.
spadicea, Hemiphaga, i. 40.
 Sparrow, xxxiii, xxxiv, xlii.
Spatula clypeata, ii. 15.
 — *rhynchotis*, ii. 16.
 — *variegata*, ii. 15.
Sphenæacus fulvus, ii. 131, 132.
 — *punctatus*, ii. 120, 131, 132.
 — *rufescens*, ii. 133.
sphenurus, Puffinus, i. 105.
Spiloglaux novæ-zealandiæ; ii. 61, 62, 68.
 Spine-tailed Swift, ii. 95.
spiniacollis, Carphibis, i. 58.
 Spoonbill, Royal, i. 193.
 Spotted Shag, ii. 35.
stanleyi, Porphyrio, i. 73.
 Starling, Mountain, xxxvii.
Steindachneri, Anthus, ii. 154.
 Stephen-Island Wren, ii. 109.
Stercorarius antarcticus, i. 169.
 — *crepidatus*, i. 171.
Sterna albistriata, i. 158, 159.
 — *antarctica*, i. 158.
 — *bethunei*, i. 159.
 — *caspia*, i. 157, 159.
 — *cinerea*, i. 161.
 — *frontalis*, i. 158, 159, 160.
 — *fuliginosa*, i. 159, 160.
 — *leucocapilla*, i. 163.
 — *nereis*, i. 158, 161.
 — *vittata*, i. 158, 159.
 Stewart-Island Kiwi, i. 1, 2.
 — Shag, ii. 30.
stewarti, Phalacrocorax, ii. 25, 30, 31, 41.
stictocephalus, Graculus, ii. 41.
 Stilt, Black, i. 179.
 —, White-headed, i. 177, 178.
 —, White-necked, i. 179.
Stiltia isabella, i. 192.
 Stink-pot Petrel, i. 109.
 Stitch-bird, xxxii; ii. 137.
stokesi, Xenicus, ii. 107, 108.
stolidus, Anous, i. 162; ii. 99.
 Storm-Petrel, Black-bellied, i. 99.
 —, Grey-backed, i. 98.
 —, White-faced, i. 98.
 —, Wilson's, i. 97.
 Straw-necked Ibis, i. 58.
Strepera graculina, ii. 146.
Strepsilas interpres, i. 171.
stridula, Strix, ii. 66.
strigirostris, Didunculus, xxxiv.
Stringops greyi, xli; ii. 90.
 — *habroptilus*, xix; i. 26; ii. 89, 90.
Strix parvissima, ii. 62.
 — *stridula*, ii. 66.
subarquatus, Ancylochilus, i. 186, 187.
 —, Scolopax, i. 187.
Sula capensis, i. 154; ii. 48.
 — *cyanops*, ii. 49, 51.
 — *fusca*, ii. 50.
 — *serrator*, ii. 46.
 — *sula*, ii. 50.
sulcirostris, Phalacrocorax, ii. 41.
 Sunday-Island Petrel, i. 114.
superbus, Nestor, ii. 71, 79.
superciliosa, Anas, ii. 5, 7, 9.
 Swallow, Australian Tree-, ii. 113.
 Swamp Crake, i. 33.
 Swamp-hen, xviii, xxix; i. 64.
 Swamp Rail, i. 63.
 Swift, Australian, ii. 95.
 —, Spine-tailed, ii. 95.
sylvestris, Gerygone, ii. 119.

- sylvestris*, Ocydromus, i. 59, 73.
 —, Pseudogerygone, ii. 118, 119.
Synœcus australis, i. 35.
Syornis, xvi.
syrmatophora, Ardea, i. 194.
Syrnium aluco, xlii; ii. 66.
tabuensis, Ortygometra, i. 63.
 —, Pyrrhulopsis, ii. 82, 83.
 — var. *atrigrularis*, Pyrrhulopsis, ii. 82.
Tachypetes aquila, ii. 51, 52.
 — *minor*, ii. 52.
taitensis, Eudynamis, ii. 98.
 —, Urodynamis, xxi; ii. 98, 99, 101.
 Takahe, i. 66.
tanagra, Turnagra, xviii; ii. 59; 134, 135.
Tantalus falcinellus, i. 192.
 Tataeko, ii. 130.
 Teal, Australian, ii. 10.
 —, Wood-, ii. 10.
tenuirostris, Puffinus, i. 104.
 Tern, Bethune's, i. 159.
 —, Black-fronted, i. 158.
 —, Caspian, i. 157.
 —, Little White, i. 161.
 —, Sooty, i. 159.
 —, Southern, i. 158.
 —, White, i. 163.
 —, White-fronted, i. 158.
 —, White-winged Black, i. 157.
Thalassœca antarctica, i. 108, 157.
 — *glacialoides*, i. 108.
Thalassogeron cantus, i. 151, 153.
 — *chlororhynchus*, i. 149, 151, 154.
 — *cornicoides*, i. 151.
 — *culminatus*, i. 149.
 — *salvini*, i. 89, 151, 152, 153.
 Thick-billed Penguin, i. 95.
 — Thrush, xviii, xxxviii.
Thinornis novæ-zealandiæ, xl; i. 176.
 — *rossi*, i. 176.
 Thrush, North-Island, ii. 134.
 —, South-Island, ii. 135.
 —, Thick-billed, xviii, xxxviii.
tibicen, Gymnorhina, ii. 96.
timoriensis, Ardea, i. 194.
 —, Herodias, i. 194.
 Titi, i. 104.
toitoti, Muscitræa, xviii.
 —, Myiomoira, ii. 114.
 —, Petroeca, ii. 114.
 Tomtit, North-Island, ii. 114.
 —, South-Island, ii. 114.
 —, White-breasted, xviii.
 —, Yellow-breasted, xviii.
 Tooth-billed Pigeon, xxxiv.
torquatus, Palœornis, ii. 88.
Totanus incanus, i. 186.
traversi, Miro, xxiii, xxiv; ii. 111, 125, 132.
 —, Phalacrocorax, ii. 30, 40.
Traversia insularis, xxxiv; ii. 109.
 — *lyalli*, ii. 110.
 Tree-Swallow, Australian, ii. 113.
Trichoglossus, ii. 71.
Tringa acuminata, i. 187.
 — *canutus*, i. 187.
tristrami, Galinago, xxv; i. 188.
 —, Halcyon, ii. 98.
trogodytes, Ocydromus, i. 60, 61.
 —, Rallus, i. 61.
 Tropic Bird, Red-tailed, ii. 53.
Trynga ruficollis, i. 186.
 Tufted Penguin, i. 84.
 Tui, xxxiii; ii. 72, 144.
Turdus albifrons, ii. 123.
 — *ochrotarsus*, ii. 124.
Turnagra crassirostris, xviii, xxxviii; ii. 134, 135.
 — *hectori*, ii. 134.
 — *tanagra*, xviii; ii. 59, 134, 135.
 Turnstone, i. 171.
undina, Eudyptula, i. 96.
unicolor, Cyanorhamphus, xxiii, xxxiv; ii. 81, 82, 83, 86.
 —, Hæmatopus, i. 6, 172, 179.
 —, Platycercus, ii. 81.
 Upokotea, ii. 130.
urinatrix, Haladroma, i. 126, 127.
 —, Pelecanoides, i. 122, 126, 127; ii. 82.
Urodynamis taitensis, xxi; ii. 98, 99, 101.
uropygialis, Numenius, i. 181.
vagans, Halcyon, ii. 97, 98.
validus, Dinornis, xvi.
variegata, Casarca, ii. 2.
 —, Rhynchaspis, ii. 15.
 —, Spatula, ii. 15.
variegatus, Numenius, i. 181, 186.
varius, Phalacrocorax, ii. 24, 25, 31, 44.
verrucosus, Phalacrocorax, ii. 27, 40.
 Victoria Penguin, i. 86.
vittata, Muscicapa, ii. 117.
 —, Petroeca, ii. 117.
 —, Sterna, i. 158, 159.
vittatus, Prion, i. 123, 124.
 Wandering Albatros, i. 128.
 Warbler, Bush, xxiii; ii. 119.
 —, Chatham-Island, ii. 119.
 —, Grey, xxxiii; ii. 117.
 Wedge-tailed Shearwater, i. 105.
 Weka, i. 48.
 West-Coast Kiwi, i. 23.
westernensis, Zosterops, ii. 150.
 Whimbrel, Australian, i. 181.
 Whimbrel, Little, i. 181.
 Whio, ii. 19.
 Whistling Duck, ii. 1.
 White-breasted Tomtit, xviii.
 White-eyed Duck, ii. 16.
 White-faced Owl, xviii.
 — Storm-Petrel, i. 98.
 White-fronted Heron, i. 196.
 — Tern, i. 158.
 White Hawk, ii. 56.
 Whitehead, xviii, xxxii, xxxiv, xxxvii; ii. 128, 129.
 White-headed Petrel, i. 111.
 — Stilt, i. 179.
 White Ibis, xli.
 White-necked Stilt, i. 179.
 White Pigeon, i. 38.
 — Tern, i. 163.
 White-throated Shag, ii. 42.
 White-winged Black Tern, i. 157.
wilsoni, Glaucopis, xviii, xxxviii; ii. 164, 165, 166.
 —, Oceanites, i. 97.
 Wilson's Storm-Petrel, i. 97.
wolfi, Circus, ii. 57.
 Wood-hen, xix, xxix, xxx, xxxi, xliii.
 —, Black, i. 60.
 —, Brown, i. 52.
 —, Buff, i. 60.
 —, Nest of, i. 62.
 —, North-Island, i. 47.
 —, South-Island, i. 58.
 Wood-Owl, xlii.
 Wood-pigeon, xxiii, xxxii; i. 36, 38.
 Wood-robin, xviii.
 Wood-Teal, ii. 10.
 Wren, Bush-, xx, xxii; ii. 104.
 —, Ground, xxxiv.
 —, North-Island, ii. 107.
 —, Rock, xxii; ii. 108.
 —, Stephen-Island, ii. 109.
 Wry-billed Plover, xx, xxi; i. 177.
Xenicus gilviventris, xxii; ii. 108, 110.
 — *insularis*, ii. 109, 110, 111.
 — *longipes*, xxii; ii. 103, 106, 107, 108, 110.
 — *stokesi*, ii. 107, 108.
 Yellow Bell-bird, xli.
 Yellow-breasted Tomtit, xviii.
 Yellow-crowned Penguin, i. 94.
 Yellow-fronted Parrakeet, ii. 88.
 Yellowhead, xviii; ii. 130.
 Yellow-nosed Albatros, i. 154.
 Yellow-wattled Crow, xviii.
zealandicus, Puffinus, i. 101, 157.
 Zosterops, xlix; i. 200; ii. 97.
 — *cærulescens*, ii. 101, 130, 149, 150.
 — *westernensis*, ii. 150.

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